

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF PENNSYLVANIA**

**NIPPO CORPORATION/INTERNATIONAL
BRIDGE CORPORATION, A JOINT
VENTURE,**

Plaintiff/Counterdefendant,

vs.

AMEC EARTH & ENVIRONMENTAL, INC.,

Defendant/Counterclaimant.

**CIVIL ACTION
NO. 09-0956**

**FINDINGS OF FACT, CONCLUSIONS OF LAW,
MEMORANDUM OPINION AND ORDER**

Rufe, J.

April 1, 2013

This matter involves claims and counterclaims arising from a construction subcontract between Plaintiff/Counterdefendant Nippo Corporation/International Bridge Corporation (“the Joint Venture” or “the JV”) and Defendant/Counterclaimant AMEC Earth and Environmental, Inc. (“AMEC”).

In November 2003, AMEC entered into a prime contract with the United States government through the Air Force Center for Engineering and the Environment (the “Air Force” or “AFCEE”) for various construction projections, including work at the Andersen Air Force Base on Guam. In September 2004, the Air Force issued a Task Order to AMEC, which included demolition, removal and replacement of the north runway at Andersen (the “Project”). In April 2005, following a competitive bidding process, AMEC awarded the Joint Venture a Subcontract to carry out the Project for a fixed fee exceeding \$21 million (the “Subcontract”). The Project involved removal of the existing hot mix asphalt (“HMA”) runways and their replacement with Portland Cement Concrete (“PCC”) pavement, with installation of asphalt at taxiway tie-ins, runway shoulders and overrun, and removal and reinstallation of runway lighting

fixtures.

The Project had an initial scheduled completion date of April 26, 2006; however, due to a series of problems with site conditions, the materials required for the Project, the Subcontract's specifications, and installation and completion of the paving, the Project was not completed until May 31, 2007. Each party blames the other for the delay and costs resulting therefrom.

PRELIMINARY ISSUES & PROCEDURAL BACKGROUND

I. JURISDICTION & VENUE¹

Plaintiff is a joint venture comprised of Nippo Corporation ("Nippo"), a Japanese corporation with its principal place of business in Tokyo, Japan, and International Bridge Corporation ("IBC"), an Ohio Corporation with its principal place of business in Agatna, Guam. Defendant AMEC is a Nevada corporation, which maintains its United States headquarters within this District.

This Court has jurisdiction over this matter pursuant to 28 U.S.C. § 1332(a)(2), because the controversy is between citizens of a State and a foreign state and the amount in controversy exceeds \$75,000, exclusive of interest and costs. The Court has jurisdiction over AMEC's Counterclaim pursuant to 28 U.S.C. § 1367 because it is a compulsory counterclaim under Rule 13 of the Federal Rules of Civil Procedure. Venue is proper in this District under 28 U.S.C. § 1391(b)(1) and (2) because AMEC maintains its headquarters within this District and a

¹ In light of jurisdictional concerns raised by issues and arguments presented during trial, the Court ordered the Parties to address (1) whether this Court has jurisdiction to hear these claims; (2) whether the United States is an indispensable party to the litigation; and (3) whether the action should have been brought under the Contract Disputes Act in the Court of Federal Claims. Both parties have stated in their bench briefs and on the record that they do not intend to challenge this Court's jurisdiction, and do not believe that the United States is a necessary or indispensable party to this action. See Doc. Nos. 184 & 185. Having considered the parties' briefs on these issues, and for the reasons stated on the record (Tr. 17 at 4:15-6:21), the Court is satisfied that the United States is neither a necessary nor indispensable party to this action, and that this Court has jurisdiction over this matter.

substantial part of the actions giving rise to the Complaint were taken by AMEC within this District.

II. THE LAW GOVERNING THE SUBCONTRACT

The Subcontract provides that Nevada law governs matters arising from the Subcontract:

AMEC and the Contractor, for themselves and for their successors and permitted assigns, hereby agree to the full and faithful performance of all the terms, provisions, covenants, conditions, and agreements herein contained. No modification or alternation of any of the terms, provisions, covenants, or agreements contained in this Agreement shall be valid unless such modification or alteration is in writing and signed by AMEC and the Contractor. *This Agreement shall be construed in accordance with and governed by the Laws of the State of Nevada or political subdivision thereof.*

P-6 at § 00500-4, Article X (emphasis added). The Subcontract also incorporates by reference certain Federal Acquisition Regulations (“FAR”), the relevance and application of which will be considered as they arise with regard to each of the claims. As the Court held at summary judgment, to the extent Nevada law is unclear, Nevada courts look to federal common law, particularly given that the Subcontract incorporates FAR clauses.²

The Court also holds that the procedural and administrative provisions of the prime contract between AMEC and the Government, including the application of the Contract Disputes Act (“CDA”), 41 U.S.C §§ 7101-7109 (*formerly codified at* §§ 601-613), do not necessarily apply to disputes between AMEC and the JV unless *specifically* incorporated into the Subcontract, rather than incorporated, as they are here, as part of a very broad “flow-down” of a lengthy list of Federal Acquisitions Regulations (“FAR”) clauses.

² Accord Eagle’s Nest Ltd. P’ship v. Brunzell, 669 P.2d 714, 717 (Nev. 1983) (citing Farnsworth & Chambers Co. v. United States, 346 F.2d 577 (Cl. Ct. 1965), which held that compliance with notice of changed conditions clause in contract requires only that the government know that the contractor is claiming a condition); see also Linan-Faye Constr. Co. v. Hous. Auth., 49 F.3d 915, 922 (3d Cir. 1995) (agreeing that where there is a dearth of state case law interpreting contract provision that was incorporated pursuant to federal regulation, state court would interpret clause “against the backdrop of federal case law addressing [it].”).

The CDA provides the statutory framework for resolving disputes between government contractors and the Government. The CDA provides that “[e]ach claim by a contractor against the Federal Government relating to a contract shall be submitted to the contracting officer for a decision.” 41 U.S.C § 7103(a)(1). The CDA defines a “contractor” as “a party to a Federal Government contract other than the Federal Government.” 41 U.S.C § 7107(7). Accordingly, “[a] government contractor’s dispute with its subcontractor [is] by definition specifically excluded from CDA coverage.” US W. Commc’ns Serv., Inc. v. United States, 940 F.2d 622, 627 (Fed. Cir. 1991); see also NavCom Def. Elecs., Inc. v. Ball Corp., 92 F.3d 877, 880 (9th Cir. 1996) (“The contracting officer has no jurisdiction to resolve disputes between a subcontractor and the prime contractor.”). Absent privity between the JV and the Government, and absent clear contractual language applicable to the JV and AMEC themselves (rather than to “contractor” and “Contracting Officer”), the CDA does not apply to this dispute, especially in light of the parties’ repeated and vehement insistence that the Government is not a necessary party to this litigation, and that this dispute should not have been brought under the CDA in the Court of Federal Claims.

III. EXTENT OF THE COURT’S HOLDINGS HEREIN

As the Court discussed with counsel for both parties, the Court’s findings of fact and conclusions of law in this Opinion are limited to its determination of *liability* as to each claim or portion of a claim. In light of the extraordinary complexity of the damages analysis performed by the Joint Venture’s damages expert, the Court does not attempt, at this juncture, to calculate days of delay, costs, or other damages associated with any given claim. Nor does the Court calculate prejudgment interest, liquidated damages, or attorneys’ fees, to the extent that these may be relevant, at this time. The Court will request supplemental briefing regarding applicable damages in accordance with its rulings herein.

IV. PROCEDURAL BACKGROUND

The JV initiated this action by filing a Complaint in this Court on March 5, 2009. The JV's Complaint included seven counts for breach of contract and one count for consequential damages. Count 1 arose from the alleged shortage of compliant aggregate base materials capable of meeting the Subcontract's rapid draining requirements, AMEC's subsequent modification of the base material specifications to permit the use of existing but poorly draining base materials instead of imported materials, and the alleged repercussions of that change on the remainder of the Project, including increased costs and significant delays in Project completion. Compl. ¶¶ 11–20, 58–64. Count 2 arose from the JV's allegations that AMEC's hot mixed asphalt specifications could not be met using only locally available aggregate, and were unnecessary in Guam's tropical environment, and that AMEC's initial insistence on compliance with the specifications ultimately delayed the HMA paving process and required the JV to remove and replace, in part or whole, 25 lots of HMA pavement. Compl. ¶¶ 21–32, 65–70. Counts 3 and 4 arose from disputes over whether removal and replacement of some 5,000 cubic yards of the PCC pavement placed on Runway 5 by the Joint Venture was necessary, as well as costs and delays related to completion of the paving. Compl. ¶¶ 33–43, 71–82. Count 5 arose from additional costs and productivity losses allegedly suffered by the JV due to AMEC's allegedly defective design of the runway's electrical and lighting system and unanticipated design changes during the course of the Project. Compl. ¶¶ 44–48, 83–88. Count 6 arose from unresolved change order requests submitted by the JV when AMEC directed it to perform extra or different work and AMEC's alleged breach of its duty to evaluate and negotiate the change order requests and to equitably adjust the Subcontract price. Compl. ¶¶ 49–51; 89–94. Count 7 generally

sought equitable adjustment of the fixed price Subcontract to account for compensable or excusable performance delays and to adjust the term of the Subcontract for delays for which AMEC is allegedly improperly assessing \$837,500 in liquidated damages. Compl. ¶¶ 95–98; Am. Counterclaim ¶ 9. Count 8 sought consequential damages. Compl. ¶¶ 99–100.

AMEC answered the Complaint and filed counterclaims seeking a declaratory judgment under 28 U.S.C. § 2201 and Rule 57 of the Federal Rules of Civil Procedure that AMEC is entitled to deduct \$837,500 in liquidated damages from the amount it owes the JV. Am. Counterclaim ¶¶ 9–18.³ AMEC also seeks attorneys’ fees and expenses associated with defending against the JV’s allegedly false and overstated claims. Am. Counterclaim ¶¶ 19–26.

At the close of discovery, the parties filed three motions for partial summary judgment: (1) a motion by AMEC for summary judgment as to all but one count, based on the JV’s failure to comply with mandatory notice provisions of the Subcontract, or, in the alternative, for summary judgment as to Counts 2, 3, 4, 5 and 7 on other grounds [Doc. No. 80]; (2) a motion by the JV for summary judgment as to AMEC’s withholding of liquidated damages [Doc. No. 70]; and (3) a motion by the JV for summary judgment regarding undisputed Change Orders [Doc. No. 79]. For the reasons set forth in the Court’s Memorandum Opinion and Order dated September 21, 2012 [Doc. No. 117], AMEC’s motion was granted in part and denied in part, the JV’s motion regarding liquidated damages was denied in its entirety, and the JV’s motion regarding undisputed change orders was granted in part and denied in part.

AMEC’s Motion for Partial Summary Judgment was granted only with respect to Count 5 (electrical work), which was dismissed with prejudice; the Motion was denied in all other

³ This Court previously dismissed AMEC’s counterclaim for liquidated damages, with leave to amend. See Order Granting in Part and Denying in Part Plaintiff’s Motion to Dismiss Counterclaims [Doc. No. 40]. AMEC subsequently amended its counterclaim, seeking declaratory judgment regarding liquidated damages.

respects. The JV was granted Summary Judgment on its claim that it is entitled to payment by AMEC for Change Order Requests 11, 19, 27, 28, 29, 32, 33, 41, and 46, with a determination of the sum of those Change Orders and prejudgment interest owing, if any, to be determined at trial, and with payment postponed until after final judgment in this matter and resolution of AMEC's Counterclaims against the JV, and offsets, if any.

A non-jury trial was held before this Court as to the remaining claims and counterclaims from March 19, 2012 through April 26, 2012. At the conclusion of the JV's case in chief, AMEC filed a Motion for Judgment on Partial Findings [Doc. No. 186], which remains pending. The Court took the motion under consideration and directed AMEC to present its own case, without prejudice to the pending motion. At the conclusion of AMEC's case, the JV filed its own Motion for Judgment on Partial Findings [Doc. No. 214] regarding AMEC's counterclaim for attorneys' fee and costs. Thereafter, each party filed revised proposed findings of fact and conclusions of law, reflecting arguments made at trial, and citing to the trial transcripts.⁴ At the parties' request, the Court permitted the parties to present closing arguments and oral argument on the two pending motions for judgment on partial findings on August 16, 2012.

Now, having heard the evidence and arguments presented by the parties at trial and at oral argument, having considered both parties' revised proposed findings of fact and conclusions of law and both parties' motions for judgment on partial findings, and after extensive review and consideration of the trial transcripts, exhibits and evidence admitted at trial, including the parties' joint stipulated deposition designations and affidavits regarding attorneys' fees and costs submitted after trial at the Court's direction, the Court hereby enters the following memorandum

⁴ Pl.'s Revised Proposed Findings of Fact & Conclusions of Law [Doc. No. 223] (hereinafter, "JV's FOF/COL"); Def.'s Revised Proposed Findings of Fact & Conclusions of Law [Doc. No. 225] (hereinafter, "AMEC's FOF/COL").

opinion, findings of fact, and conclusions of law.⁵

V. AMEC'S MOTION FOR JUDGMENT ON PARTIAL FINDINGS

As an initial matter, having considered the Motion for Judgment on Partial Findings [Doc. No. 186] submitted by AMEC at the conclusion of the JV's case in chief, the JV's opposition thereto, and the arguments made on the record before AMEC presented its own case and at oral argument on August 16, 2012, the Court will deny the Motion.

Rule 52 of the Federal Rules of Civil Procedure provides that, if a party has been fully heard on an issue during a nonjury trial, the Court may enter judgment against the party on a claim or defense that, under the controlling law, can be maintained or defeated only with a favorable finding on that issue. See Fed. R. Civ. P. 52(c). In considering whether to grant judgment under Rule 52(c), courts apply the same standard of proof and weigh the evidence as they would at the conclusion of trial. Id.

First, AMEC argues that the JV's failure to submit a complete copy of the Subcontract into evidence is fatal to its claims. The Court does not agree, and holds that the more than 400 pages of the Subcontract offered into evidence as Plaintiff's Exhibit 6 contain all the relevant terms and conditions necessary for the Court to consider these claims. AMEC, too, appears to have found the portion of the Subcontract in evidence more than sufficient to support its own findings of fact and conclusions of law, and has furthermore failed to identify any portion of the Subcontract crucial to the JV's claims that was not admitted into evidence.

AMEC also argues that, because the JV did not offer into evidence the job cost data underlying the reports and testimony of its damages expert Carl LaFraugh, the JV failed to admit

⁵ The facts set forth in the Project Background section of this opinion, together with those included in the description and discussion of each claim, constitute the court's findings of fact pursuant to Federal Rule of Civil Procedure 52(a). The court's rulings on mixed questions of fact and law are set forth in the discussion sections.

any evidence in support of its alleged project expenditures, and consequently, failed to prove the damages element necessary to sustain its claims. The Court does not find this argument convincing for a number of reasons. First, it is well established that pursuant to Federal Rule of Evidence 703, an expert may rely on facts and data not admitted into evidence, as long that data is of a type reasonably relied on by experts in the relevant field. Second, Federal Rule of Evidence 1006 permits a party to offer a summary of the evidence (through charts, tables, graphs, etc.) in lieu of voluminous underlying data, where such evidence is otherwise admissible. Mr. LaFraugh testified that, in calculating the JV's alleged damages and generating his expert report and rebuttal report, he reviewed the relevant job cost records. C. LaFraugh, Tr. 15 at 32:5-15; 36:7-11. This is precisely the situation contemplated by Evidence Rules 703 and 1006.

In addition to Mr. LaFraugh's testimony, the JV elicited testimony from Mr. Tsuri and Mr. Fica, as well as Mr. Robertson and Mr. Street, as to the reliability and accuracy of the underlying job cost data. AMEC has argued that, as Mr. Tsuri did not conclusively identify at trial a document previously identified at his deposition as a summary of the job cost data on which Mr. LaFraugh based his damages calculations, Mr. LaFraugh's entire damage calculation is therefore inherently unreliable and incapable of verification by AMEC. See Tsuri, Tr. 9 at 27:9-34:7. The Court cannot agree with this characterization of Mr. Tsuri's testimony. Mr. Tsuri, who testified at trial through two interpreters—the JV's own, and AMEC's "check" interpreter—did identify the data contained within the job cost summary as data he had conveyed to Mr. LaFraugh in the course of preparation of the damages report. Mr. Tsuri simply stated, consistent with his earlier deposition testimony, that Defendant's Exhibit 838⁶ was not a document that he himself had prepared, nor could he swear to the absolute accuracy of every job cost therein without comparing the document to voluminous accounting data not available to him

⁶ Not admitted into evidence.

at the moment of his testimony. Id. at 31:22-34:7. On the whole, however, having observed Mr. Tsuri's demeanor during his examination, and having reviewed the transcript of his testimony, the Court found Mr. Tsuri very credible, if occasionally over-cautious in his answers. In light of the fact that English is not Mr. Tsuri's first language, that his examination and testimony were filtered through dueling translators, and that Defendant's counsel did not cross-examine Mr. Tsuri as to the *content* of the job cost summary (rather than the appearance of the document itself) with particular precision, the Court does not find the job cost data produced by the JV inherently unreliable.

Furthermore, during the lengthy period of fact discovery in this litigation, AMEC had ample opportunity to examine and question any underlying job cost data and invoices, the employees who prepared such data, and the resulting damages report and rebuttal report by Mr. LaFraugh. To the extent that AMEC has identified specific errors in the cost data or in the damages calculation, such errors may inform the Court's determination of the *weight* of the JV's injury and damages evidence, but does not render the evidence of no value whatsoever.

Accordingly, the Court holds that the JV has presented sufficient evidence of causation and damages that a judgment on partial findings is not appropriate, and the Court will consider all the evidence presented at trial. AMEC's Motion for Judgment on Partial Findings [Doc. No. 186] will be denied by separate Order.

VI. JV'S MOTION FOR JUDGMENT ON PARTIAL FINDINGS REGARDING AMEC'S COUNTERCLAIM FOR ATTORNEYS' FEES

At the conclusion of its case in chief, the JV moved this Court for judgment in favor of the JV on AMEC's counterclaim for attorneys' fees and costs. The parties have had the opportunity to present their legal arguments at length both on the record, and in their briefing on

the Motion for Judgment on Partial Findings [Doc. Nos. 214 & 224], and the Court will not attempt to repeat them in their entirety here.

As the Court has already ruled, in the absence of an express contractual or statutory provision, attorneys' fees are recoverable under Nevada law only in very limited circumstances. Here, in order to recover attorneys' fees, AMEC must establish liability under Nevada Revised Statute 18.010 or demonstrate special damages under the Nevada Supreme Court's decision in Sandy Valley Assocs. v. Sky Ranch Estates Owners Ass'n, 35 P.3d 964 (Nev. 2001). See Tr. Day 17 at 10:2-11:15. NRS 18.010 provides, in pertinent part, that an award of attorneys' fees is permitted "(a) [w]hen the prevailing party has not recovered more than \$20,000; or (b) [w]ithout regard to the recovery sought, the court finds that the claim . . . was brought or maintained without reasonable ground or to harass the prevailing party. The court shall liberally construe the provision of this paragraph in favor of awarding attorneys' fees . . . in all appropriate situations to punish for and deter frivolous or vexatious claims and defenses" In Sandy Valley, the Nevada Supreme Court held that, in certain limited circumstances, a party can recover attorneys' fees "as foreseeable damages arising from tortious conduct or a breach of contract." Id. at 957. But such recovery is available only where the attorneys' fees are "the natural and proximate consequence of the injurious conduct" and are "proximately and necessarily caused by the actions of the opposing party." Id. at 957-58. As a practical matter, attorneys' fees are rarely awarded, except in third party actions, title actions, and in instances of bad faith conduct by an opposing party. See id. at 970 ("Because parties always know lawsuits are possible when disputes arise, the mere fact that a party was forced to file or defend a lawsuit is insufficient to support an award of attorney fees as damages.").

AMEC's counterclaim is premised on its argument that, if the JV has not presented

evidence sufficient to prevail on all its claims, those claims are “unsupported” and therefore by definition frivolous or groundless within the meaning of NRS 18.010 or sought in bad faith under Sandy Valley. The Court cannot agree to this interpretation, which would render virtually any losing plaintiff liable for attorneys’ fees. AMEC correctly states that this Court’s denial of the JV’s Motion to Dismiss Count II of AMEC’s Counterclaim in July 2009 recognized that AMEC had set forth under Nevada law a valid *claim* for breach of contract “resulting from the Joint Venture’s submission of false and overstated claims.” Doc. No. 224 at 1. That this counterclaim survived a motion to dismiss does not, however, mean that AMEC has prevailed on that claim, or established that the JV in fact breached the contract. AMEC further asserts that “the Joint Venture’s failure during the Parties’ recent trial to adduce factual evidence *that in any way supports its claims* confirms the false and overstated nature of the Joint Venture’s claims.” Doc. No. 224 at 1-2 (emphasis added). The Court cautions AMEC against the use of such excessive hyperbole, and reminds AMEC that, as the saying goes, “what’s sauce for the goose is sauce for the gander,” when it comes to making groundless or frivolous counterclaims. The Court finds without the slightest hesitation that the JV has not, in fact, failed “to adduce factual evidence that in any way supports its claims” over its month-long case in chief, which was replete with damaging testimony and documentary evidence regarding AMEC’s responsibility for delays and costs on the Project; whether the JV has presented sufficient evidence to prevail on its claims at trial is another matter entirely.

As the Court has already ruled that the procedural requirements of the CDA are not applicable to the dispute between the JV and AMEC, the JV’s failure to “certify” its claims to AMEC is not a breach of the Subcontract. Nor, in light of the piles of documentary evidence and weeks of testimony at trial, can the Court find that the JV’s claims were submitted—either in its

Request for Equitable Adjustment or in this Court—in bad faith, or were deliberately overstated. In a set of claims of this magnitude and complexity, some margin of error is to be expected. Accordingly, errors in the claim revealed over the course of the litigation do not require the Court to infer that the claims are false or overstated as a whole. To the contrary, the Court commends the efforts of the JV and its damages experts to acknowledge and correct those errors, where they were discovered by either party. Finally, it is for the Court to decide whether or not it was appropriate for the JV to claim certain costs or types of costs against AMEC—that their legitimacy is in dispute does not render them “false.”

Accordingly, the Court will grant the JV’s Motion for Judgment on Partial Findings Regarding Defendant’s Counterclaim for Attorneys’ Fees and Costs [Doc. No. 214] by separate Order.

VII. NOTICE OF CLAIMS

AMEC continues to argue, as it did at summary judgment, that the JV’s remaining claims are barred by its failure to provide timely notice under the Subcontract of problems or delays it encountered throughout the Project, or its intent to seek modification of the Subcontract or an adjustment in Subcontract price. AMEC’s FOF/COL ¶¶ 33-43, 86, 98, 110, 116-19, 172-73, 329, 564, 582-84, 872.

The Subcontract contains a number of provisions requiring that the JV provide AMEC with notice of claims and requests for additional compensation. Among others, § 00700-1.21 of the Subcontract, “Changes in Work,” provides:

AMEC shall authorize any change or alteration in the Contract Work scope in writing. If the [JV] believes that any change or alteration entitles him to an increase in the Contract Price, he must request a change order therefor as provided herein. Additional

work performed by [JV] without authorization of a Change Order or Field Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, whichever is applicable, except in the case of an emergency

P-6.

Section 00700-1.21 also provides that, if the JV encountered “conditions at the site that materially differ from those shown on the Plans or indicated in the Specifications, [it was to] immediately (within 7 days) give notice thereof to AMEC, and before such conditions are disturbed.” If such notification is not provided, the Joint Venture would be “responsible for accepting any responsibility or costs for the differing site conditions.” P-6. If notification of differing conditions is provided by the JV, however:

AMEC will thereupon investigate such conditions and, if it is found that such conditions differ materially from those shown on the Plans or indicated in the Specifications, AMEC will at once make such changes in the Plans and/or Specifications as AMEC may deem necessary. Any increase or decrease in cost resulting from such changes shall be adjusted by issuance of a Change Order.

P-6.

Section 00700-1.22 of the Subcontract, “Change in Contract Price,” provides that:

1. The Contract Price constitutes the total compensation payable to Contractor for performing the Work. All duties, responsibilities, and obligations assigned to and undertaken by the Contractor as prescribed in the Contract Documents shall be without change in the Total Compensation.

2. The Contract Price may only be changed by a written Change Order executed by AMEC. Any request for an increase in the Contract Price shall be based on written notice delivered to AMEC prior to performance of the proposed Work giving rise to the claim, and within 7 days of discovery of conditions that give rise to such a claim, except in the case of an emergency. In the case of an emergency, any claim for an increase in the Contract Price shall be based on written notice delivered to AMEC within seven (7) calendar days of the occurrence of the event giving rise to the claim. The written notice in both cases

shall include the amount of the claim with supporting data. Any change in Contract Price resulting from an emergency claim shall be incorporated in a Change Order.

P-6 (emphasis in original).

As the Court discussed in its Memorandum Opinion at summary judgment, the Subcontract also incorporates by reference the substantive provisions (but not every procedural provision) of certain Federal Acquisition Regulations (“FAR”), including FAR 52.243-4 as a supplemental condition. FAR 52.243-4 provides that the contractor has a right to additional compensation for costs incurred within 30 days of giving notice and provides that the contractor submit a request for an equitable adjustment within 30 days of providing notice.

Nevada law provides that notice must be sufficient under the circumstances to make the contracting entity aware of the difficulties and permit it to remedy the situation to avoid excess costs, so long as a sufficiently detailed claim follows, when the value of the claim cannot be determined with reasonable accuracy at the outset. Eagle’s Nest, 669 P.2d at 716. The Nevada Supreme Court concluded that requiring strict compliance with a provision mandating submission of a claim within a reasonable period of time after the delay would require the contractor to “prognosticate . . . all delay costs before they had been incurred.” Id.

Under federal common law, notice provisions are liberally construed, with compliance determined by whether the notice given satisfies the purposes of the clause. See, e.g., Brinderson Corp. v. Hampton Rds. Sanitation Dist., 825 F.2d 41, 44 (4th Cir. 1987) (compliance with notice-of-changed-conditions clauses is determined by whether the owner has actual and constructive notice of the conditions underlying the claim and an opportunity to investigate). Where the contracting entity has actual or constructive notice of the conditions underlying the claim and an opportunity to investigate, such notice may be sufficient regardless of whether the contractor strictly adhered to the specific requirements of the notice clause. Id.; see also Perini

Corp. v. City of New York, 18 F. Supp. 2d 287, 293 (S.D.N.Y. 1998), *aff'd*, 182 F.3d 901 (2d Cir. 1999) (“Federal law, as developed by the Board of Contract Appeals and the Court of Claims, construes the notice provisions of the Changes Clause liberally; thus a contractee’s actual or constructive notice of the conditions underlying the claim excuses formal compliance when federal law is applied.”). Where the contracting officer directs work knowing the likely outcome, strict compliance with notice provisions is unnecessary. Calfon Constr., Inc. v. United States, 18 Cl. Ct. 426, 438 (1989), *aff’d*, 923 F.2d 872 (Fed. Cir. 1990). The “overriding legal principle” is that “[w]ritten notice . . . must be supplied by the contractor before such time that the [contracting entity] would suffer if not apprised of the facts.” *Id.* Courts will permit otherwise late claims under a notice clause where late notice has not prejudiced the contracting entity. 1 Bruner & O’Connor Construction Law § 4:35. Thus, notice principles under federal common law are consistent with the approach adopted by Nevada in Eagle’s Nest.

At summary judgment the Court concluded that, based on the record before it at the time, the Joint Venture did not strictly comply with the contract requirements for all claims. Nonetheless, because Nevada law governs the Subcontract, and because the Joint Venture had presented evidence demonstrating numerous timely communications with AMEC regarding the difficulties it encountered, notice that it was incurring damages and, in many cases, notice that it intended to seek an equitable adjustment to the Subcontract, the Court also concluded that the Joint Venture had presented sufficient evidence from which a reasonable jury could conclude that it provided sufficient notice to AMEC regarding the problems it was encountering and the damages it was sustaining. *See, e.g., S. Tex. Elec. Coop. v. Dresser-Rand Co.*, 575 F.3d 504, 507 (5th Cir. 2009) (where law did not require strict compliance with contractual notice provision, district court did not err in submitting to jury the question of whether contractor

substantially complied with notice provisions).

After considering the arguments made by the parties at trial and in each party's proposed findings of fact and conclusions of law regarding notice, the Court confirms its earlier analysis of the notice requirements under the Subcontract, applicable FAR, Nevada law and federal common law.

GENERAL FACTUAL BACKGROUND⁷

I. THE PROJECT

On November 21, 2003, AMEC entered into Prime Contract No. FA-8903-04-D-8669 (the "Prime Contract") with the United States Government acting through the Air Force Material Command, Air Force Center for Environmental Excellence ("AFCEE" or "Air Force") relating to a series of construction and environmental renovation projects around the world, including work at Andersen Air Force Base in Guam. Joint Pretrial Statement of Facts (hereinafter "JSOF") ¶1 [Doc. No. 176-1]. AMEC's Prime Contract with the Air Force required that AMEC perform construction and engineering projects, including projects at Andersen Air Force Base, pursuant to discrete task orders issued under the Prime Contract. Feighery, Tr. 24 at 118:18-119:8.

Military airfields are classified based upon the type of aircraft using the facility. There are three major categories: light, medium, and heavy load. Andersen is classified as a "heavy load" facility and is designed for the use of B-52 and bomber aircraft. McQuiston, Tr. 19 at 83:22-84:16; Witczak, Tr. 22 at 88:17-90:6. The significance of the Specifications increases significantly for a "heavy load" facility such as Andersen.

⁷ Because we write for the parties, who are very familiar with the people and entities involved in the Project, and with the scientific and industry terminology used throughout this Opinion, the Court will not identify individuals or define terms except as the Court feels it necessary to clarify its analysis.

It is also crucial to note that Guam has a wet, tropical climate that receives an average annual rainfall of nearly 100 inches during approximately 270 days a year, divided into two seasons: rainy (approximately July through November or December), and dry (approximately December or January to June). JSOF ¶2.

On September 27, 2004, the Air Force issued Task Order 0013 for North Runway Repairs and Munitions Storage Area 1 Road Resurfacing at Andersen Air Force Base, Guam (the “North Runway Project” or the “Project”). JSOF ¶3. The North Runway Project included the demolition, removal, and replacement of the existing hot mix asphalt concrete runway with a runway utilizing a combination of hot mixed asphalt (“HMA”) and Portland Cement Concrete pavement (“PCCP” or “PCC pavement”). JSOF ¶4. A majority of the new runway was to be constructed of PCCP, certain areas – including taxiway tie-ins, runway shoulders, and overruns – were to be paved with HMA. JSOF ¶5. The Project also entailed the removal and replacement of the existing electrical systems for the North Runway and the addition of new systems for aircraft signaling and traffic control. JSOF ¶6.

The total value of the Prime Contract task order was \$29,756,238. JSOF ¶7. The Prime Contract between the Air Force and AMEC is a cost reimbursable contract—in other words, all amounts expended by AMEC (including amounts that AMEC paid to its fixed price subcontractors) are to be reimbursed by the Air Force, provided that the costs are within the scope of work and the authorized budget, permitted, allowable under the governing Federal Acquisition Regulations (“FAR”) and approved by the Air Force. McQuiston, Tr. 19 at 90:15-19; 92:23-94:1.

AMEC issued a Request for Proposals (“RFP”) to prospective subcontractors, soliciting bids for the North Runway Project. JSOF ¶10. The RFP included a copy of the proposed

Subcontract terms, as well as a listing of all applicable FAR provisions, for review by potential bidders as they prepared cost proposals for the Project. McQuiston, Tr. 19 at 98:11-16; Street, Tr. 1 at 67:16-68:13; see also P-6 at § 00811 (“Supplemental Conditions Prime Contract Flow Down Provisions”).

The JV was among several interested subcontractors that submitted cost proposals for the North Runway Project subcontract. JSOF ¶11. AMEC selected the JV’s proposal, and AMEC and the JV entered into negotiations to finalize the scope of the Project and the terms of the subcontract.

Despite being the low bidder, the amount of the JV’s bid exceeded AMEC’s budget, and AMEC therefore worked with the JV to reduce and/or alter the Project’s scope in order to bring down the overall price. Street, Tr. 1 at 82:24-83:9; 84:2-14. In fact, AMEC provided the JV with a spreadsheet detailing its own estimated costs for each of the bid items, which the JV ultimately met. Street, Tr. 1 at 83:7-9; P-22; see also P-2 at AMEC0083236–83274. The Joint Venture’s Best and Final Offer (“BAFO”) was a base bid of \$21,049,964, plus bond of \$157,875, for a total price of \$21,207,839. JSOF ¶13; see also P-13 at § 00312-2. On April 25, 2005, AMEC and the JV entered into Subcontract No. 205-17S-79656 (the “Subcontract”) in the total amount of \$21,207,839, plus an additional \$85,222 for included Option 8. See P-13 at § 00312-4.

The original completion date for the Subcontract work was April 26, 2006. The completion date was extended to June 29, 2006, pursuant to Subcontract Modification No. 1. JSOF ¶15. AMEC later expanded the scope of the original work to include additional electrical work, and AMEC extended the completion date by ten days to July 10, 2006. P-30. The Project incurred substantial delays, for which each party blames the other. Final acceptance of the

Project was ultimately granted by AMEC and the Air Force on May 31, 2007, 325 days after the planned Project end date. JSOF ¶16.

In or around July 2006, the JV retained the engineering consulting firm of Wiss Janney Elstner (“WJE”) and consultant Robert LaFraugh, in relation to issues concerning concrete placement and repair that are now the subject of the JV’s claim. Robertson, Tr. 9 at 74:18-75:5. In September 2006, the JV also retained Jacobs Associates and damages consultant Carl LaFraugh to develop a total claim (the Request for Equitable Adjustment) for the North Runway Project. Robertson, Tr. 9 at 139:13-141:2. The JV submitted notice of the claims that ultimately became the REA to AMEC at the conclusion of the Project, on May 31, 2007. The REA itself was submitted by the JV on March 21, 2008. On May 13, 2008, AMEC notified the JV that AMEC considered the REA to be untimely. D-773.

II. PROJECT COSTS, PAYMENTS & THE JV’S REQUEST FOR EQUITABLE ADJUSTMENT

Despite the delays and difficulties encountered on the Project, AMEC completed the Project within the Air Force’s budget of approximately \$30 million by granting few, if any, price modifications or schedule extensions to its subcontractor. The total project costs billed to the Air Force were \$29,032,863.12 out of a budgeted amount of \$29,756,238. See P-517H at 2.

The JV, on the other hand, incurred a substantial cost overrun on the Project. The JV alleges that it incurred a total job cost of \$47,676,377 on the Project, comprised of the following: on-site job cost through January 2007 (\$34,505,000), plus on-site job cost after January 2007 (\$4,074,375), plus Nippo direct staff (\$281,791), plus Nippo indirect staff (\$251,165), plus the 80% of off-site overhead attributed to the Project (\$4,497,114), minus duplicate costs (- \$267,284), plus a 10% profit mark-up (\$4,334,216). JV’s FOF/COL ¶19; see also C. LaFraugh, Tr. 16 at 94:10-95:6; Ficca, Tr. 14 at 100:19-103:18.

AMEC has paid the JV a total of \$22,555,278 for its work on the Project, and the JV's alleged total cost overrun is therefore \$25,121,099. Adding markups for insurance, bonding, and sales tax, the overrun is \$26,801,993. C. LaFraugh, Tr. 16 at 94:10-95:6. Of the JV's cost overrun, the JV attributes 251 days of delay and \$16,200,549 of those costs to impacts for which AMEC is responsible. See P-567 (demonstrative); see also JV's FOF/COL ¶20. The remaining cost overrun, excluding interest, totals \$10,880,566, which has not been claimed and for which the JV has admitted responsibility.

In addition, AMEC has withheld \$837,500 in liquidated damages pursuant to the Subcontract's liquidated damages clause (P-6 at § 00700-1.33), which provided that the JV would pay AMEC \$2,500 per day for every day that the JV was "in default in completing the work" after the planned project completion date. The JV contends that, under Nevada law, this liquidated damages provision is an unenforceable penalty because AMEC's contract with the Air Force was a cost-reimbursable contract that did not impose similar liquidated damages on AMEC, that AMEC cannot show any actual damages resulting from the project delay that would justify withhold liquidated damages, that AMEC improperly withheld liquidated damages for a period of delay during which there was concurrent delay for which the JV was not responsible, and that AMEC improperly withheld liquidated damages after the date of substantial completion. Accordingly, the JV requests the return of the \$837,500 withheld, plus prejudgment interest.

THE JOINT VENTURE'S CLAIMS

I. INTRODUCTION

At the outset, the Court notes that determining and attributing "fault" among the parties in a highly complex construction contract is never simple. Many variables affect any given event, including, in this instance, the extreme weather conditions found on Guam, the difficulty

and expense of transporting material, equipment, and personnel to a remote island, and the delays and difficulties inherent to a project where approval ultimately rests with a third party. Where, as here, that third party is the United States Air Force, and the project is of military significance, the balance of power among the parties is necessarily—and quite reasonably, under the circumstances—skewed in favor of the third-party project owner and its general contractor. Moreover, the parties involved in this litigation are sophisticated repeat players in this industry, and as such, are fully aware of the consequences of entering into a contract that places responsibility for increased costs and delays primarily on the subcontractor. It is the JV’s burden at all times throughout this litigation to prove, by a preponderance of the evidence, that any claimed delay or cost is attributable to AMEC. Where a given delay or cost is equally attributable to both parties, or where there is insufficient evidence to show that AMEC was primarily responsible, the JV cannot recover for delay damages or additional costs. In addition, the JV must demonstrate that a given delay impacted the “critical path” of the Project, and was not simply concurrent with delay caused by the JV. In a project of this length and complexity, this is a heavy evidentiary burden.

That being said, the project incurred certain substantial early delays and unexpected costs that were indisputably caused by the JV. These include, for example, multiple late cement deliveries,⁸ the JV’s initial attempt to use an on-island paver that proved wholly inadequate to the

⁸ The JV obtained Portland cement concrete for the Project in several deliveries, each of which was late. Robertson, Tr. 10 at 12:24-13:5. The first delivery was not complete until January 23, 2006, or nearly two months late. Robertson, Tr. 10 at 13:6-9. The Joint Venture’s second cement delivery was delayed by the loss at sea of a barge carrying approximately 2,700 metric tons of cement destined for the Project. D-161. The JV’s June 9, 2005 Update Schedule showed cement deliveries as critical path, with the first delivery to be completed no later than November 18, 2005, in order to meet the June 29, 2006 Completion Date. D-1072. After the loss of the second delivery, the JV sought a waiver of the U.S. Flag vessel requirement to purchase the remaining quantity of approximately 13,000 metric tons of Portland cement from a supplier on Guam, but projected as much as a six-week loss of critical path concrete paving production as a result of the late deliveries. D-162. In internal correspondence the JV admitted that that, as a result of

job and subsequent decision to import a new paver,⁹ insufficient trucks to transport concrete, and other equipment issues. JV's FOF/COL ¶¶ 750-76. There is no doubt that many of these initial project delays, such as the late cement deliveries and the failure of the Wirtgen paver, pushed the paving phases of the Project into Guam's rainy season, greatly exacerbating any delay or deficiencies that were the natural result of paving in frequent heavy rainfall. It also became evident at trial that the JV drastically underestimated the number of rain delay days that would need to be built into the schedule, in light of Guam's weather,¹⁰ failed to provide sufficient rain protection for freshly placed cement,¹¹ and failed to implement an adequate dewatering procedure to deal with ponding water.¹² In addition, the Court heard evidence at trial regarding the internal difficulties experienced by the JV during its management transition from IBC to Nippo.¹³ In light of these JV-caused delays and deficiencies, the JV's evidentiary hurdles at trial

the late cement deliveries, the start of PCC Paving was delayed from November 2005 until March 2006. D-262. PCCP paving did not start until February 2006. Robertson, Tr. 10 at 19:8-11. Although the JV attempted to mitigate the delay by purchasing cement on-island and by accelerating the schedule to work 6 days a week, the JV has conceded that PCCP paving was a critical path item, and delay to the critical path PCCP paving delayed the ultimate completion of the Project. *Id.* at 19:8-25. Critically, a substantial portion of both base course and paving work was pushed into the rainy season. Robertson, Tr. 10 at 69:21-70:3; 84:10-14; D-262.

⁹ Discussed in further detail below, with regard to the JV's PCCP Placement Claim.

¹⁰ On average, as mentioned above, it rains 273 days per year on Guam. During the rainy season, which runs from approximately July to November, it rains an average of 25-26 days per month. All parties acknowledged that rain was one of biggest risk factors on the North Runway Project. (Street, Tr. 3 at 46:24-47:6.) Nevertheless, the JV's original baseline schedule provided for only 26 "rain days"—that is, scheduled working days on which the JV expected to make no progress due to rain—for the duration of the year-long Project. Ultimately, the Project took nearly 2 years to complete, with paving work taking place over an entire year, including the rainy season months.

¹¹ Discussed in further detail below, with regard to the JV's PCCP Placement Claim.

¹² Discussed in further detail below, with regard to the JV's Aggregate Base Course Claim.

¹³ From 1999 onward, Nippo and IBC were joint venture partners on a number of projects located in Alaska, Wake Island, and Guam, including the North Runway Project. In or around December 2005, Nippo took over management of 10 Joint Venture projects, including the North Runway Project, because IBC lacked the financial ability to continue performance. This management transition and ongoing

were particularly high.

The Court notes, however, that the JV has been relatively forthcoming in taking responsibility for those delays and in attempting to figure them into their calculation of damages. AMEC, on the other hand, has taken the position that virtually all delay or additional cost associated with the nearly year-long project overrun is attributable solely to the deficient performance of the JV, or where it is not, the JV either failed to provide sufficient notice of the claim to AMEC, failed to prove causation, or failed to prove damages.

After hearing all the evidence and testimony presented at trial, the Court concludes that, as to certain limited claims, the JV has indeed shown that AMEC was either primarily responsible for the delay or additional cost, or was unreasonable in its direction or evaluation of the JV's performance in ways that constructively modified the Subcontract or constituted a breach of AMEC's contractual duty of good faith and fair dealing.

II. THE JV'S HOT MIX ASPHALT CLAIM

A. Background

Although the majority of the Project was constructed of Portland cement concrete pavement, certain areas—including runway shoulders, overruns, and taxiway tie-ins—were to be paved with hot mixed asphalt (“HMA”). JSOF ¶5. As part of the RFP process, AMEC provided the Joint Venture with the North Runway Project's hot mix asphalt (“HMA”) Specifications (P-25), which were to be used to create an HMA “mix design”—in other words, the formula that

disputes between the Joint Venture partners lead to changes in personnel on the Project, and considerable conflict with William and Robert Toelkes of IBC, the original managers of the Project, who had overseen the bid process. IBC remained involved with the Project for some time, providing equipment, materials, and labor, with varying degrees of success. These internal Joint Venture conflicts certainly caused delay and expense, but the parties dispute as to what extent the conflict ultimately impacted the Project.

was to be followed in mixing the HMA. P-6 at §02742.

Pursuant to the Air Force's instructions to AMEC, the HMA specifications for the North Runway Project were developed using the Unified Facilities Guide Specifications ("UFGS") for hot mix asphalt, subject to a few modifications by the Andersen Air Force Base Civil Engineering Squadron. McQuiston, Tr. 4 at 173:5-12. The HMA specifications for the Project required, among other properties: (i) a Voids in Mineral Aggregate ("VMA") of no less than 13%; (ii) a three-quarter-inch gradation "pass rate"—that is, the percentage of the aggregate that could pass through a three-quarter-inch sieve—of 76-96%; and (iii) a Fine Aggregate Angularity ("FAA") of 45%. P-6 at 02742-9 to -12.

A voids-in-mineral-aggregate ("VMA") standard sets the minimum level of voids permitted in an asphalt mix between the aggregate. "The term VMA describes that portion of the space in a compacted HMA pavement or specimen which is not occupied by the aggregate"—that is, the area occupied by air and asphalt not absorbed by the mineral aggregate. See Prithvi S. Kandhal & Sanjoy Chakraborty, Evaluation of Voids in the Mineral Aggregate for HMA Paving Mixtures, Nat'l Ctr. for Asphalt Tech., Auburn Univ., NCAT Report No. 96-4, at 1 (1996) (*available at* <http://ntl.bts.gov/lib/6000/6300/6362/rep96-4.pdf>). As a general matter, the purpose of the VMA specification is to ensure that there is enough void space among the aggregate particles to allow the asphalt binder to coat each piece, such that every particle is adequately bound to the remainder of the HMA, producing a durable pavement that will not break apart and create loose pieces of aggregate. Witczak, Tr. 22 at 93:19-94:13.

The parties do not dispute that loose pieces of aggregate, resulting in Foreign Object Debris ("FOD") on the runway, pose a significant threat to military aircraft; FOD may be sucked into the jet engines, leading to engine failure, damage to aircraft, and, potentially, loss of life.

McQuiston, Tr. 19 at 160:10-161:5; Witczak, Tr. 22 at 95:3-5. The parties do dispute, however, whether a 13% VMA requirement was necessary to achieve a durable HMA on this Project, due to the properties of the local aggregate and Guam's temperate climate. Nonetheless, the JV presented no evidence that it took any exceptions to the HMA Specifications, including the VMA requirement, when it submitted its cost proposal to AMEC.

When the JV submitted its proposal for the Project, it did so with the expectation that IBC would produce the mix from its drum plant located on Guam. Robertson, Tr. 8 at 52:15-21. In April 2006, however, the JV decided to forego use of IBC's Yigo Plant and instead utilize a different local supplier, Hawaiian Rock Products ("HRP"), for the HMA mix, based primarily upon the Joint Venture's desire to avoid the U.S. Flag Vessel requirement¹⁴ and the fact that HRP had a "better operation setup than did IBC." Robertson, Tr. 8 at 52:15-53:22. AMEC does not dispute that it has successfully used HRP as its HMA supplier for a prior runway project at Andersen Air Force Base, the South Runway Project. Further, in its cost proposal to the Air Force, AMEC noted that "Hawaiian Rock is the preferred asphalt paving contractor of Andersen Air Force Base at this time." P-2 at 22.

Both parties were aware that HRP might have difficulty meeting the UFGS mix design specifications. Robertson, Tr. 8 at 68:20-69:14. However, because HRP's work on the South Runway project had been successful, neither AMEC nor the JV anticipated significant problems with the approval of HRP's mix design. *Id.* at 54:14-55:13, 110:17-24; see also P-142 at 1 (designating mix as HRP Mix GAA-1).

Pursuant to the Joint Venture's original baseline schedule, the Joint Venture planned to submit the asphalt mix design in June 2005 and the Job Mix Formula in July 2005. Street, Tr. 3

¹⁴ The cost of using a U.S. Flag Vessel to transport certain materials, as required under DFARS Clause 252-247-7023.

at 65:6-9; 66:5-11. Ultimately, however, the JV submitted to AMEC the HMA mix design to be used with IBC's Yigo plant on March 31, 2006. P-150. On May 6, 2006, after switching to HRP, the JV submitted its HRP mix to AMEC for approval via Transmittal #277 (P-154); this mix effectively mirrored the previous mix that HRP had used for AMEC on the South Runway Project. P-150.

In evaluating the mix, Ken Wylie, an AMEC engineer, noted that the mix did not comply with the Subcontract's HMA specifications; the mix did not meet the VMA requirement and had a gradation passage rate that exceeded 96%. P-156. AMEC notified the JV that the May 6, 2006 job mix was "out-of-spec." P-156. However, despite not strictly complying with the HMA Specifications, Phil McQuiston, AMEC's Project Manager, directed approval of this mix on May 12, 2006, because it had been used successfully on the South Runway project. P-157 at 1 ("If there are no significant changes in the mix we will approve it as we know it has performed acceptably when properly placed. Foxtrot South started in July 2004 and there have been no problems with the asphalt. If there are things that have changed that we need to correct we will do so. If it is the same mix we will approve it.").

The JV subsequently resubmitted to AMEC for approval an asphalt mix from HRP dated May 31, 2006. P-161 at 3-21. Mr. Wylie again noted that the mix did not strictly comply with the Subcontract's HMA specifications; this mix had a VMA of 12.4% (instead of 13%), and a three-quarter-inch gradation passage rate of 98% (2% finer than the specified range of 76-96%). P-159. Mr. Wylie nevertheless recommended that AMEC accept this mix. P-159 ("We have accepted past mix designs with missing and non-complying results I think that we can give a conditional approval of the mix but ask that the retained stability test be run as well as the aggregate tests (except Fine Aggregate Angularity). I think we can give a variance on the VMA

issue and waive the requirement for Fine Aggregate Angularity.”); see also P-16.

On June 2, 2006, AMEC granted “conditional approval” of the HRP mix “based on a variance of the VMA and waiver of the Fine Aggregate Angularity and [three-quarter-inch]” screen requirement.” P-161. At trial, Mr. McQuiston confirmed that AMEC believed that the HRP mix design was acceptable for its purpose, with certain requirements waived. McQuiston, Tr. 4 at 141:21-142-10.

On June 8, 2006, AMEC notified the Air Force of its approval and transmitted the HRP mix results to the Air Force simply “for your records.” P-161. On June 9, 2006, however, Master Sergeant Charles Breder of the Air Force rejected the mix design submittal in consultation with Luis Torres of the Air Force, insisting on strict compliance with the HMA specifications, including the 13% VMA requirement. P-162. As a result, AMEC withdrew its conditional approval of the mix design. On June 9, 2006, AMEC informed the JV that “the VMA and the [three-quarter-inch] screen must be within specification.” P-162. At trial, however, the JV offered substantial evidence that AMEC’s personnel disagreed with the Air Force’s decision to reject the May 2006 mix, which was equivalent and possibly superior to the HMA mix previously used on the South Runway Project at Taxiway Kilo; that mix design also had target gradation for the three-quarter-inch and No. 40 screens and VMA outside original specification limits. P-163; P-164.

AMEC then became involved with the design process in an effort to devise an asphalt mix that strictly complied with the HMA Specifications. Mr. McQuiston instructed Mr. Wylie of AMEC to “please direct Hawaiian Rock how to proceed with the mix design.” P-169. Mr. Wylie recommended that HRP utilize Geo-Engineering Testing to help develop a compliant asphalt mix. P-171. Thereafter, Mr. Wylie worked directly with HRP and Geo-Engineering to

develop the mix. Wylie, Tr. 20 at 73:4-75:15.

The parties dispute to what extent AMEC “took control” of the HMA mix design process between mid-June and early August 2006. The evidence shows that, although HRP was in fact the JV’s own subcontractor, HRP was taking direction from AMEC rather than the JV during this period (P-178), and the JV was no longer directly involved in the mix design process. See, e.g., P-172, P-173. The JV concedes that AMEC never directed the JV *not* to continue to try to develop a compliant mix on its own (Robertson, Tr. 11 at 78:24-79:2), but contends that AMEC effectively took responsibility for developing a compliant design out of the JV’s hands during this period by monopolizing the services of HRP and/or deliberately excluding the JV from the design process. AMEC presented evidence at trial that it provided the JV with occasional progress updates and that the JV continued to meet and correspond with both HRP and AMEC about the asphalt mix design throughout July and August. D-297; D-305; D-371; D-389. But AMEC, too, was unable to develop a mix design that achieved the minimum 13% VMA threshold. McQuiston, Tr. 4 at 171:5-8.

It became increasingly clear to both parties that the delay in achieving an HMA mix was delaying the entire Project, because Taxiway H had to be completed before PCC paving could commence on the remainder of the Project. On July 22, 2006, therefore, the JV provided written notice to AMEC that it intended to make a claim based on the delay associated with development and approval of an HMA mix design:

This is to notify you that we are being damaged by this suspension of a critical activity. We were informed that a new mix design is to be developed for use on this project and until the new mix design is developed, tested and approved, we are not to proceed with this portion of the work. . . . When the full impact on cost and schedule can be determined, we will provide greater detail on this subject.

P-174.

On July 22, 2006, AMEC's engineers noted that they were "running out of ideas" and expressed doubts as to whether it was even "possible" to achieve a 13% VMA. P-175. On July 24, 2006, at a meeting with the Air Force, AMEC again requested "that the Air Force grant a waiver . . . so that the project can proceed." P-179. The Air Force, however, still refused to do so. Evidence presented at trial demonstrates that AMEC personnel were frustrated by the Air Force's position on the HMA design, which AMEC also believed should be approved as soon as possible, with the necessary variances. JV's FOF/COL ¶¶ 104-105. The record also shows that AMEC personnel believed the 13% VMA requirement was unnecessary. P-181 at AMEC0180691 (McQuiston email dated August 2, 2006) ("Asphalt pavement in Guam (I am guessing) has never met the UFGS specifications and in 1982 the Navy OICC changed the gradation of the aggregate in the specification to match the aggregate that was available on Island. The[i]r spec did not provide a VMA requirement that I can see or an FAA requirement. We adopted the UFGS Specification in our IWP (as instructed) and unfortunately HRP is out of specification I expect [the Air Force personnel] won't be able to realize that Guam is a 2nd World Country with deficient labs and will refuse to grant approval of the mix. Within 2 weeks the project could come to a screeching halt as a result of this issue." (discussing the OICC Marianas Specifications successfully used by the military on Guam in the past)).

Absent approval of the HMA mix, the JV was unable to complete paving on Taxiway-H—which was necessary to continue PCC paving—and the lack of an approved HMA mix was therefore on the verge of shutting down the entire project. P-208 (letter from the JV to AMEC dated Sept. 9, 2006) ("The suspension of bituminous hot mix paving prevented us from opening Taxiway-H on the date scheduled. This in turn prevented us from closing and demolishing Taxiway-E which in turn prevented us from continuing and completing PCC paving activity as

scheduled.”). AMEC also understood the urgency of the issue. P-181 (McQuiston email dated Aug. 2, 2006) (“The asphalt mix design is a very critical issue at Andersen and the project can’t move forward to completion without it.”) On August 10, 2006, the JV provided notice to AMEC that it expected that the ongoing asphalt-related delays, if not promptly resolved, would shut down the entire project on August 18, 2006. P-183 (“At that time, we will be forced by circumstances caused by this change in mix design to furlough the PCC paving crew.”).

On August 14, 2006—with AMEC still being unable to develop a compliant mix design—AMEC’s project manager, in an internal email, expressed his concerns about the resulting delays and AMEC’s potential liability therefrom:

The asphalt mix design and not having something we can approve will shut the project down as soon as the end of the week. I expect AMEC will incur a delay *claim as a result of this which will be quite significant. I expect \$20,000 per day. This asphalt mix design is ruining the project and putting AMEC in a very bad position. . . .* I don’t know how AMEC got ourselves into the middle of trying to produce an asphalt mix design for HRP but i[t] was a fatal mistake that we must immediately extricate ourselves from.

P-187 (emphasis added).

Finally, by the middle of August, AMEC and the Air Force abandoned their attempt to design a mix that strictly complied with the HMA specifications. Unable to develop a job mix formula that complied with its specifications, AMEC instead convinced the Air Force to agree to a mix design developed by AMEC during this process. P-182 (“AMEC has worked with Geo Engineering and HRP to try to develop a mix that will be acceptable to the Air Force. Therefore we have developed one which can be used.”). AMEC’s new mix design complied with the HMA Specifications with the exception of three properties: aggregate gradation (*i.e.*, percent passing three-quarter-inch sieve), VMA, and fine aggregate angularity. P-182. The Air Force agreed to waive the requirements of the HMA Specifications with respect to those three properties. P-182.

On August 15, 2006, AMEC informed the JV of the waiver of these HMA properties, which included a reduction in the required VMA from a minimum of 13% to a minimum of 12%. P-188. However, because concrete paving (“PCCP”) could not continue until Taxiway-H was completed, on August 16, 2006, the JV notified AMEC that it was suspending concrete paving indefinitely. P-190.¹⁵

On August 23, 2006, AMEC pointed out that the Air Force had needlessly delayed the project by refusing to approve HRP’s substantially similar asphalt mix back in June. As summarized by Mr. McQuiston in an email to the Air Force:

There was an asphalt mix design that AMEC recommended approving in June because it was very close to spec and coming from the only asphalt provider on Guam. PACAF and Andersen AFB refused to accept this as it varied slightly from the specification. AMEC performed 2 months of testing and ran many variations on the asphalt mix design and tried different gradations and procedures and on Tuesday the PACAF experts verbally agreed that a minor variation of the specification as recommended by AMEC will be acceptable.

P-196.

On August 21, 2006, AMEC gave permission for the JV to proceed with an asphalt test strip based on the Job Mix Formula developed by AMEC and HRP. P-193. AMEC directed the JV to produce an asphalt mix that complied with the “revised mix parameters” and the contents of the new Job Mix Formula. P-193. The new mix design included a 12.4% VMA. The JV began placing the asphalt test strip on August 29, 2006. P-209. On September 9th, the JV sent a

¹⁵ “After the end of shift on August 18, 2006, we will suspend our concrete paving operations due to lack of available work area from station 1+50 to 20+50. Most of the key paving personnel will leave Guam and return to their homes [in the U.S.]. We will resume concrete paving when the remaining work becomes available; at this time we can not reasonably determine when the resumption will occur. This suspension is not desirable to us and is a result of a flaw in the specifications requiring an asphalt mix that can not be reasonably made with local aggregate sources; the mix formulation has also been delayed by change directives to try other UFGS gradations not found in our specifications.” P-190 (Street email dated Aug. 16, 2006).

letter to AMEC noting that—because PCC paving could not resume until asphalt on Taxiway-H was completed—PCC paving was still “suspended and will be suspended for another period of weeks.” P-208. The JV completely suspended its concrete paving operations effective August 21, 2006. The JV did not resume concrete paving until October 17, 2006, and attributes a delay of approximately 57 days to AMEC’s “improper rejection” of the JV’s HMA submittal from May 31, 2006. P-570 (demonstrative); see also Butterfield, Tr. 5 at 104:3-105:12.

Although AMEC granted a variance of the HMA Specifications on August 15, 2006, it did not agree to simply accept the HRP mix originally submitted by the JV. Instead, AMEC directed the JV to utilize a new HMA job mix formula that AMEC’s engineers had designed and tested in a laboratory based upon AMEC’s revised specifications. The formula developed by AMEC, based upon AMEC’s revised specifications, was developed by modifying aggregates in a laboratory in a manner that—while possible in a laboratory—could not be consistently reproduced in the field.

The HRP mix from May 31, 2006 had set a target for the No. 200 sieve at 5.3%. P-161; Root, Tr. 12 at 93:9-21. AMEC’s new formula reduced that figure to 3%. Id. at 93:9-22; 196:13-24. As noted by an AMEC engineer, this change required HRP “to change the No. 10 screen on the aggregate bin to remove fines.” P-182. AMEC expressly directed that HRP “will be required as the lab data shows to continue to remove the #200 fines from the bag house to produce the desired mix.” P-193; see also Root, Tr. 12 at 94:15-95:2. The JV offered evidence at trial that AMEC’s intent at this point in the process was simply to “produce a mix result [in the laboratory] that will work on paper and tell HRP they have to produce it.” P-187 (McQuiston email dated Aug. 4, 2006).

On August 24, 2006, AMEC conceded in an email to the Air Force that “AMEC has been

working to develop a job mix formula since June The best mix that could be achieved in the Laboratory produced a VMA of 12.4% with a FAA of 42% and slightly more than 96% passing the 3/4 [inch sieve]. To achieve this mix in the laboratory the fines in the mix were reduced to 3% which will be very difficult to achieve in the production plant.” P-197. Despite such concerns, AMEC did not adjust its design mix or modify the HMA Specifications accordingly, and, on September 6, 2006, AMEC directed HMA production work to proceed with its design mix.

As feared, HRP could not achieve the 3% maximum requirement for the No. 200 sieve, so the JV changed the target to 4%. P-200. (The Specifications expressly allow the JV to adjust the No. 200 sieve requirement within one percentage point. P-6 at § 02742-13, Part 2.06A.) Although this change was necessary to attain the No. 200 sieve requirements, it reduced the ability of the JV to consistently achieve the air voids requirement set forth by the Specifications. Root, Tr. 12 at 101:4-105:5, 115:4-116:19. In changing the target for the No. 200 sieve, AMEC did not reduce the air voids design target of 3.8%. Id. at 102:16-103:13, 143:19-23. The HMA Specifications set forth an acceptance tolerance of 1.0 percent, which means that air void results below 2.8 percentage would therefore be considered failing and cause for rejection. Id. at 103:5-104:11; P-6 at § 02742-25, Part 4D.

A change in the No. 200 sieve percentage will change the air voids by just under one percent, about 0.8 to 0.9 percent. Root, Tr. 12 at 101:25-102:3. Since AMEC’s design mix used a target for air voids of 3.8 percent, this change thereby reduced the standard air voids from a design of 3.8 percent to a design of approximately 3.0 percent. Id. at 101:16-103:8. Accordingly, the production air voids would be at 3.0 percent, which is at the bottom of the acceptable tolerance (since 2.8 percent is grounds for rejection). This allows for almost zero

margin of error, leading to a high number of air void failures by the JV. Id. at 103:5-104:11.

Additionally, in order to meet the No. 200 sieve requirement, HRP could do so only by artificially removing dust and lowering the asphalt content—which it could not do consistently and made it more difficult to meet the air void requirements. Id. at 102:14-105:5; 110:1-115:15. The specialized equipment necessary to wash large quantities of fine aggregate was not available in Guam (id. at 97:9-98:5, 106:11-24, 107:24-108:5), and HRP was the only available asphalt plant on Guam. P-197 (“There is only one asphalt supplier in Guam and that supplier is Hawaiian Rock Products (HRP).”); see also P-181 (“Asphalt pavement on Guam used to be conducted by two firms, Hawaiian Rock and IBC. Now only HRP is left . . .”). HRP took a number of other unusual measures in an effort to meet the revised specification and remove dust from the aggregate, including blowing out dust and pulling more or less air throughout the plant. Root, Tr. 12 at 100:15-16, 207:5-10. HRP ultimately washed the coarse aggregate via alternate methods, although this had limited effect in removing fines and averting the rejection of lots. Id. at 197:20-198:10, 98:1-5, 106:11-24. HRP had not previously washed their aggregate for use in asphalt, although they attempted to do so in order to meet the #200 sieve requirement. Id. at 107:10-16.

The final HMA mix proved extremely sensitive and difficult to work with, and the asphalt failed in many areas after placement. By September 22, 2006, the JV had placed only seven lots. Six of these seven lots required removal or partial removal. The three that were fully removed did not meet the specified air void criteria. The other three failed density requirements (*i.e.*, compaction criteria). Ultimately, the JV produced approximately 46 lots for the Project; from that production, 7 lots were partially removed and replaced for compaction issues and 13 lots were completely removed and replaced for air void issues. Id. at 110:1-22, 117:3-4, 135:4-

137:2; see also Elmer, Tr. 7 at 100:13-101:15.

Mr. Root testified that the asphalt content and gradation production changes from the mixture design targets caused the failures for five of the lots removed for air void issues: Lots 6, 7, 11, 21 and 23. Root, Tr. 12 at 111:25-116:9. He further testified that these failures stemmed from AMEC's requirement of an artificially low target for the #200 sieve, which increased the variability of the air void results. Id. at 113:13-114:19. AMEC directed the JV to remove and replace these five lots, along with many others. Root, Tr. 12 at 119: 7-10; C. LaFraugh, Tr. 15 at 56:13-18, 58:6-63:1, 63:22-66:15.

B. Discussion

First, the JV contends that AMEC committed economic waste when it rejected the JV's HMA mix submission of May 31, 2006 and then directed the JV to "repair" the mix so that it strictly complied with the HMA specifications, because "the cost of strict compliance was economically wasteful and both mixes were otherwise adequate for its intended purpose." (JV FOF ¶120.) See Granite Constr. Co. v. United States, 962 F.2d 998, 1007 (Fed. Cir. 1992).

As the Court discussed in its September 21, 2011 Summary Judgment Opinion and Order, the doctrine of economic waste is ordinarily a limitation on the general rule that contract damages shall be imposed to protect a party's expectation interest. See generally F. James Robinson, If Wishes Were Horses: the Economic-Waste Doctrine in Construction Litigation, 70 J. Kan. Bar Ass'n. 28 (Apr. 2001). The doctrine may be invoked by contractors seeking compensation for allegedly economically wasteful repairs incurred due to an owner's insistence on strict compliance. See generally, 6 Bruner & O'Connor Construction Law § 19:59 (2002); see also, e.g., Circle Constr. Grp., ASBCA No. 38844, 90-3 BCA ¶ 22999 (claim by contractor for denial of claim for costs associated with correcting defective asphalt). Under that doctrine, "the

measure of the owner's damages for the contractor's breach of the contract is the cost to repair or complete the work in accordance with the contract, unless the repair or completion would result in economic waste" 24 Williston on Contracts § 66:17 (4th ed. 2009). The doctrine "limits an owner's recovery of 'cost to repair' damages to their added value," and "limits an owner's right to insist upon repairs in strict compliance with contract plans and specifications" See 6 Bruner & O'Connor Construction Law § 19:59.

Nevada appears to have adopted the economic waste doctrine. See, e.g., Hermann v. Varco-Pruden Bldgs., 796 P.2d 590, 592 (Nev. 1990) (concluding that damages based on diminution in value were inappropriate because the repair required would not result in economic waste); Mort Wallin of Lake Tahoe, Inc. v. Commercial Cabinet Co., 784 P.2d 954, 955 (Nev. 1989) (agreeing with district court's economic waste conclusion because there was "no error in its determination that the appropriate measure of damages is the diminution in the value of the property caused by the breach"). The test for waste under federal common law is whether the "cost of correction is economically wasteful and the work is otherwise adequate for its intended purpose." Granite Constr., 962 F.2d at 1007. Similarly, in most states, the question is whether the cost of the repairs is disproportionate to the value obtained by the repair. See Robinson, If Wishes Were Horses, at 31. The contractor bears the burden of proving that the loss in value from the defect is less than the cost of repair. 6 Bruner & O'Connor Construction Law § 19:59.

The Court held in its September 21, 2011 Opinion and Order that the correction giving rise to the claim may be either repair *or* removal and replacement. See, e.g., Cashman Equip. Corp. v. U.S. Fire Ins. Co., 368 F. App'x. 288, 295 (3d Cir. 2010) (considering Massachusetts law, and noting a party suing for breach of a construction contract may be awarded damages based upon the cost to repair the defective work, unless such repairs would lead to unreasonable

economic waste) (citing Restatement (Second) of Contracts § 348); Guest v. Phillips Petroleum Co., 981 F.2d 218, 221 (5th Cir. 1993) (noting Texas courts which apply the doctrine of economic waste “have held that it is improper to award damages . . . for the cost of repair, if the award of those damages results in economic waste”) (emphasis added); see also Austin-Westshore Constr. Co. v. Federated Dep’t Stores, Inc., 934 F.2d 1217, 1225 (11th Cir. 1991) (finding the argument that “economic waste principle should only be applied in situations involving more extensive destruction” to be without merit). However, the Court has not found, and the JV has not cited, case law that supports the use of the economic waste doctrine to justify an ex-ante refusal to comply with a contract specification.

In the alternative, the JV argues that the contract specifications were “commercially impracticable” to meet, because they could not be met using on-island materials. JV’s FOF/COL at ¶¶146-52. This argument is substantially similar to the “impossibility” argument made by the JV at summary judgment. At summary judgment, the Court held that, “[l]ooking to the unambiguous terms of the contract, . . . the Joint Venture was required to meet the HMA specifications and was free to use locally available aggregate if doing so met the specifications. If the local materials did not meet the specifications and imported materials would have . . . , then the Joint Venture’s claims for damages under Count 2 on grounds of impossibility must fail.”¹⁶ The Court sees no reason, based on the evidence presented at trial, to disturb that holding.

Legal impossibility can, however, be proven under the somewhat less stringent standard of commercial impracticability, where its proponent can show that a contractual duty is impracticable if it can be performed only at unreasonable and excessive cost. Natus Corp. v. United States, 178 Ct. Cl. 1, 9 (1967); Transatlantic Fin. Corp. v. United States, 363 F.2d 312,

¹⁶ Contract interpretation is a question of law. Farmers Ins. Exch. v. Neal, 64 P.3d 472, 473 (Nev. 2003).

315 (D.C. Cir. 1966). The doctrine of commercial impracticability requires three elements: (i) something unexpected must have occurred; (ii) the risk of the occurrence must not be assigned by the contract or by custom; and (iii) the unexpected occurrence must have rendered performance commercially impracticable. Id.; see also HLI Lordship Indus., Inc., VABCA No. 1785, 86-3 BCA 19,182. The JV has argued that “the inability of the parties to meet the HMA Specifications was an unexpected occurrence; second, the risk of the occurrence was not assigned by contract or custom, especially since (i) the custom and prior history of paving in Guam dictates that the usual and customary means of paving in Guam was to utilize local aggregate and (ii) AMEC was the designer and thus bore the risk of its design’s performance; and, third, importing aggregate would have been commercially senseless, being exceedingly expensive, time-consuming, and of little to no value.” JV’s FOF/COL at 37-38. Here, the Court agrees that it is evident that both the JV and AMEC entered into the subcontract with the assumption that, regardless of the specifications set forth in the subcontract, locally available aggregate would meet the specifications, or the specifications could and would be waived to accommodate local materials. Nevertheless, no provision was made in the subcontract guaranteeing that waiver, or guaranteeing a price and time adjustment for the importation of other materials, should local materials prove inadequate. The JV therefore bore the “risk” of that occurrence. Furthermore, although several people offered testimony that the cost of importing asphalt would be “exorbitant,” the JV did not offer evidence defining “exorbitant” such that the Court could conclude that, in light of the extensive cost and delay associated with attempting to use local materials, importation was genuinely impracticable.

However, after hearing all the testimony at trial related to the HMA design process, the Court concludes that AMEC’s active involvement in attempting to create an HMA mix with

local materials that met the contract specifications—ultimately resulting in AMEC’s obtaining the mid-August approval and variances for a mix design that was substantially similar to that submitted by the JV at the end of May—violated the duty of good faith and fair dealing by interfering with the JV’s contract performance. “Implicit in every contract, the duty of good faith and fair dealing obliges that neither a private party nor the Government ‘do anything that will hinder or delay the other party in performance of the contract.’” Fireman’s Fund Ins. Co. v. United States, 92 Fed. Cl. 598, 660 (2010) (quoting Essex Electro Eng’rs, Inc. v. Danzig, 224 F.3d 1283, 1291 (Fed. Cir. 2000); citing Precision Pine & Timber, Inc. v. United States, 596 F.3d 817, 828 (Fed. Cir. 2010); First Nationwide Bank v. United States, 431 F.3d 1342, 1349 (Fed. Cir.2005)). “The duty of good faith and fair dealing encompasses a duty not to hinder contract performance.” Id. (citing H & S Mfg., Inc. v. United States, 66 Fed. Cl. 301, 310–11 (2005) (“Generally, a failure to cooperate with the other party in the performance of a contract serves as a breach of that contract because a failure to cooperate violates the duty of good faith.”)). “In discharge of this duty, a party is ‘not to interfere with the other party’s performance and [is] not to act so as to destroy the reasonable expectations of the other party regarding the fruits of the contract.’” Id. (quoting Centex Corp. v. United States, 395 F.3d 1283, 1304 (Fed. Cir. 2005)). With respect to the implied covenant of good faith and fair dealing, the Nevada Supreme Court has stated that “[w]hen one party performs a contract in a manner that is unfaithful to the purpose of the contract and the justified expectations of the other party are thus denied, damages may be awarded against the party who does not act in good faith.” Hilton Hotels Corp. v. Butch Lewis Prods., 808 P.2d 919, 923 (Nev. 1991); see also Perry v. Jordan, 900 P.2d 335, 338 (Nev. 1995). “Neither ‘bad faith’ nor ‘bad intent’ is required to breach the duty of good faith and fair dealing. H & S Mfg., 66 Fed. Cl. at 311. A party might breach the duty not to hinder performance when

committing ‘actions that unreasonably cause delay or hindrance to contract performance.’ A government official, for example, cannot ‘willfully or negligently interfere with the contractor in the performance of his contract.’” Fireman’s Fund, 92 Fed. Cl. at 660 (quoting H&S Mfg. 66 Fed. Cl. at 311).

C. Conclusion

Here AMEC, regardless of what seem to have been good intentions at the outset, interfered with and hindered the JV’s contract performance by taking the HMA mix design process out of the JV’s hands by using the JV’s own sub-contractor, Geo Engineering, and the only available asphalt plant on the island, HRP, to develop a different mix. At no time did AMEC direct the JV to import materials to meet the specifications; rather, by attempting to design its own HMA mix and by belated seeking variances from the Air Force to permit the use of local materials, AMEC actively took on responsibility for seeing that the project was completed *without* importing materials. AMEC’s efforts at self-help backfired, but only after AMEC itself was unable to develop a mix that met the specifications in the subcontract did AMEC make a concerted effort to seek the necessary variance from the Air Force. It would be unjust, therefore, to hold the JV responsible for the delay associated with AMEC’s own unsuccessful attempts to improve on the JV’s May 31, 2006 mix design. Accordingly, the Court holds that the JV has met its burden of proving that AMEC is liable for time-delay damages incurred by the JV during the period beginning June 9, 2006, when AMEC withdrew its conditional approval of the JV’s mix design, until August 15, 2006, when a variance was finally granted to accommodate AMEC’s own mix design.

The Court is also particularly troubled by AMEC’s decision to compel the JV to use a laboratory-created HMA mix that AMEC evidently knew would be difficult, if not impossible, to

produce in the field, while making little allowance for field-production variations and failures. Such a decision clearly violates the duty of good faith and fair dealing. The Court therefore finds AMEC liable for the additional delay and costs—including additional costs paid to Geo-Engineering for removal and replacement of asphalt lots, and costs paid to asphalt specialist Richard Root—associated with the JV’s efforts to reproduce AMEC’s design mix in the field, and for the removal and replacement of all lots rejected for air void and compaction issues. Because PCC paving could not continue until Taxiway H was completed, the Court holds that AMEC is also liable for time-delay damages and additional costs incurred by the JV from September 6, 2006, when AMEC directed the JV to begin production using AMEC’s mix design, until the JV resumed PCC paving on October 17, 2006, excepting any delay attributed by the JV to issues with “moisture damage testing” or “placement of smaller lots.” JV’s FOF/COL ¶¶ 231-235. Finally, because paving work on the project virtually ceased during this period of time, the Court also finds that the HMA-related delay periods identified above impacted the critical path of the project.¹⁷

III. THE JV’S AGGREGATE BASE COURSE CLAIM

A. Background

The JV’s scope of work on the Project also included demolition of the existing asphalt concrete runway and subgrade, stockpiling of material for reuse, and placement of base course material on top of the existing compacted subgrade, which would support both the asphalt and concrete portions of the new runway. P-6 at § 01010 (“Summary of Work”). The technical specifications applicable to the base course included requirements for gradation, which required

¹⁷ The Court recognizes that the paving crew also took a previously planned furlough of several weeks during this delay period; however, as that furlough was already accounted for in the Project schedule, the additional HMA-related critical path delay is the responsibility of AMEC.

the base course—whether existing or new—to be “rapid draining material.” P-25 at § 02721; Pl. Ex. 6, § 02301. To the extent that sufficient and compliant material was not present on site, the Subcontract set forth that AMEC might exercise Alternate Unit Pricing, Civil Option No. 5,¹⁸ which would allow the JV to import compliant base course material on a unit price basis. P-93 at 2; P-25 (Addendum No. 3) at § 00312-3; P-24, Q & A No. 13; McQuiston, Tr. 19, at 189:6-19.

AMEC provided the JV and all prospective subcontractors with the results of core samples on the North Runway as part of Addendum No. 1. P-90. The “Instructions to Offerors” indicated that subcontractors, by the act of submitting their proposals, would be acknowledging that they had satisfied themselves as to the nature and location of the work, the conformation and conditions of the ground and subsurface, the uncertainties of the weather, and a number of other potential issues related to the site and conditions. P-6 at §00010-2 (“Inspection of the Site”).

AMEC conducted a pre-bid site investigation for prospective bidders on January 13, 2005, which was attended by the JV. P-6 at § 00010-2 (“Inspection of the Site”). The JV was unable to conduct tests during the site visit to determine either the quantity or quality of the existing base course because—at the time—the existing base course was still covered by asphalt. McQuiston, Tr. 4 at 7:22-9:23. Nonetheless, pursuant to Specification §00700-1.26 (“Surface/Subsurface Information”) of the Subcontract, the JV covenanted and warranted that it “had sufficient time to examine the site of the Work to determine the character and elevations of the material and conditions to be encountered, that [the JV] is aware and knows of the character of the site and the conditions to be encountered, and that [the JV] has based [its] Offer on [its] own independent examination of the site and conditions.” P-6. Prior to award of the Subcontract in May 2005, the JV did not object to reusing the existing base course. McQuiston, Tr. 19 at

¹⁸ The Court notes for the record that the Civil Option line item number for “New Base Material” set forth in the table for Alternate Unit Pricing in Exhibit P-6 at § 00312-3 is 4.d.3, not 5. This line item was shifted to No. 5 in Addendum No. 3. See P-25.

190:6-9.

In August 2005, after commencing work on the Project, the JV tested the existing base course material. Street, Tr. 1 at 96:5-17; P-91; P-93. The results revealed that the base course did not satisfy the Subcontract's technical requirements and was not "rapid draining" material. P-93. The Specifications mandated that the base course material contain no more than 8% "fines" (*i.e.*, fine-grade material) that would pass through a No. 200 sieve;¹⁹ however, nine of the ten test samples had pass rates of 11% to 23% fines. P-93. The JV submitted the testing results to AMEC, remarking that "it is obvious that the fairly well-sorted fine material is not rapid draining" and expressing its assumption that AMEC would exercise Civil Option No. 5 to import compliant base course. P-93. Instead, AMEC directed the JV to use the existing base material as a cost-saving measure. P-109 ("We have chosen to build this project using a number of economic procedures, one of them being keeping the existing base course (actually native fill material) and not replacing the sub-base and base course."). AMEC directed the JV to process the existing base course material, and modified the contract specifications to allow for a higher percentage of fine-grade material. The parties dispute whether this processing was additional work not required by the terms of the contract. Street, Tr. 1 at 113:14-20.

B. Discussion

The JV contends that AMEC's decision to waive the Specification's permeability requirements, refusal to allow the importation of new base course, and direction to re-use

¹⁹ In short, base course is composed of materials of different sizes, ranging from coarse to fine grade, as defined by the material's ability to pass through a series of sieves. The finest grade material will pass through a No. 200 sieve. Water drains more rapidly through base course that contains a lower percentage of fine-grade material. Accordingly, depending on the drainage requirements of a given project, technical specifications set the maximum percentage of each gradation that the base course may contain. Here, the original Subcontract specifications provided that the base course contain no more than 8% fine-grade material.

existing base course that did not meet the original gradation requirements of the contract led to many problems for the JV, including failure to drain and resulting standing water “ponding” on the work site. Pita, Tr. 12 at 41:21-42:20. Ponding required the JV to pump out standing water, wait for the base course to dry, and remove sediment, before laying down concrete. See, e.g., P-117, P-118, P-119 and P-528; Street, Tr. 2 at 17:22-20:3. The JV argues that the existing base course’s “undue retention of moisture thus increased the JV’s amount of work by requiring additional mitigation efforts in preparing for rain, dealing with the water after the rain, and forcing the JV to incur idle time spent waiting for the base course to dry.” JV FOF/COL at ¶¶ 49-50 (citing Street, Tr. 2 at 17:22-20:3). The JV also argues that AMEC unreasonably resisted the JV’s request that it be allowed to import compliant base course, as provided for under Civil Option No. 5 (P-104; P-106; P-110; P-114), in part because AMEC believed that the project would be in an overall “cut” situation, meaning that there was excess material that needed to be removed from the runway, thereby negating the need to import new base course. McQuiston, Tr. 4 at 89:19-90:12.

At some locations on the Project work site, notwithstanding AMEC’s modification of the technical specifications and directions to modify the existing base course material, there were insufficient quantities of existing base course. AMEC therefore directed the JV to excavate existing base course material from other phases of the Project, process it and transport it to other Project locations. Street, Tr. 1 at 148:20-163:8; P-498D; P-498E. The JV claims that these directions by AMEC created significant inefficiencies in the JV’s planned flow of work and delayed follow-on work. Street, Tr. 1 at 155:14-156:5.

The JV presented evidence at trial that the re-use of existing base course led to a significant problem and associated delays between Station 40 and Station 60 on the runway.

That location was a “cut” location, where AMEC directed the JV to simply remove material to bring the location to the appropriate grade. P-109. In 2005, AMEC’s inspector approved the work and determined it ready for pavement. Id. (“this area was basically good to go, regardless of how much actual base course was present”). Later, a sink hole developed, which required additional work to correct and resulted in delays to the project, for which AMEC expressly took responsibility. P-112 (email from McQuiston to Air Force personnel, dated May 26, 2006) (“The holes were not soft spots and did not represent a lack of compaction but were a differing site condition and AMEC will be responsible for paying our subcontractor for the work associated with any concrete or select fill.”).

The JV argues that, absent a formal Change Order, AMEC’s direction to re-use the existing base course—which did not comply with original contract specifications—and modification of those specifications to permit more fines, constituted a constructive change. Accordingly, AMEC should have increased the contract price to account for the increased performance costs associated with working with excess fines, and should have compensated the JV for processing base course in lieu of importing base course pursuant to Civil Option No. 5 of the Subcontract.

The JV also argues that the relaxed specification permitted excessive fines which prevented the base course from being rapid draining, and the costs associated with dealing with a defective specification therefore sound as a constructive change. Miller Elevator Co. v. United States, 30 Fed. Cl. 662, 701 (1994). In addition, the JV argues that AMEC implicitly warranted that its modified specifications were not defective and would not cause additional cost to the contractor. See, e.g., United States v. Spearin, 248 U.S. 132, 136-137 (1918) (“[I]f the contractor is bound to build according to plans and specifications prepared by the owner, the

contractor will not be responsible for the consequences of defects in the plans and specifications.”); Ehlers-Noll v. United States, 34 Fed. Cl. 494, 499 (1995).

Finally, the JV argues that the drainage and permeability of the base course also constitutes a Type 1 differing site condition, because AMEC had expressly represented that sufficient base course material existed onsite that met the listed technical specifications. P-25, Q&A No.70 (“The existing base course, as tested in January 2005 . . . meets the gradation requirements as specified in UFC 3-260-02. The three samples tested meet the gradation requirements for normal aggregate (except for a few passing levels slightly above the allowed limit), and meet all of the gradation requirements for coral base courses as specified in the UFC. . . . The contractor may need to excavate some of the base course to ensure the gradation requirements are met.”).²⁰ The Court agrees that AMEC appears to have warranted that the existing base course, as tested, met the technical specifications; the Court does not agree, however, that the quoted language also guarantees that the base course existed in a *quantity* sufficient to complete the Project.

The JV claims that it incurred delays totaling 42.5 days due to base course impacts attributable to AMEC (excluding change orders), as well as other costs and damages.

AMEC counters that the JV (1) knew that AMEC intended the JV to reuse existing base course material to the maximum extent possible, (2) had the opportunity to build additional costs into its bid to account for any work associated with that re-use, (3) knew at the time of bidding

²⁰ A Type I differing site condition arises when the conditions encountered differ from what was indicated in the contract documents. See FAR 52.236-2. In order to be eligible to recover for a Type I differing site condition, a contractor must first prove, as a threshold matter, that the contract contained some identification of the conditions to be encountered at the site. H.B. Mac, Inc. v. United States, 153 F.3d 1338, 1345 (Fed. Cir. 1998); P.J. Maffei Bldg. Wrecking Corp. v. United States, 732 F.2d 913, 916 (Fed. Cir. 1984). The contractor must then prove by a preponderance of the evidence that the conditions encountered during the contract performance differed materially from the conditions indicated in the contract.

that the available base course was *not* rapid draining, and had a dewatering plan in place to deal with ponding water, (4) knew that the Subcontract required excavation, transportation, and processing of existing sub-grade material in preparation for paving, and, most importantly (5) neither provided contemporaneous notice to AMEC that the JV intended to seek delay damages or costs associated with “insufficient compliant base course,” nor proved at trial that lack of base course or lack of non-rapid-draining base course actually affected the critical path of the Project.

In its Request for Final Proposal from the JV, AMEC confirmed that the intent on the Project would be to reuse existing base material salvaged from the runway demolition to the maximum extent possible beneath all new pavement. McQuiston, Tr. 19 at 188:25-189:25. The Joint Venture was aware from the beginning of the Project that it would be expected to reuse as much existing base course as possible. The Joint Venture’s Project Manager Jim Street testified that the Joint Venture included the costs for reusing existing base course in its bid. Street, Tr. 3 at 82:15-24. The Joint Venture raised no objection to reuse of the existing base course when it submitted its Final Proposal for the Project. McQuiston, Tr. 19 at 190:2-9.

The JV did not offer any evidence or testimony at trial that the gradation charts or description of the base course material as “rapid draining” in the Specifications shaped the JV’s estimate. For example, there was no evidence presented by the JV that it put more or less money into its bid to account for drainage, pumping of water, and/or any other work potentially related to the “rapid draining” quality of the existing base course. To the contrary, the Joint Venture’s witnesses testified that the original plan, at the time that the Joint Venture submitted its bid, was for the base course to remain ahead of the paving work “because of the potential and danger of rain damage to that aggregate base course material,” and because of the risk that rain would damage the base course and “make it so that the [Joint Venture would] then have to do some

additional work to get it prepared.” Street, Tr. 3 at 88:8-24. The Joint Venture expected that the material would not be “rapid draining,” and that rain would require additional base course related work. Id. at 87:3-88:7.

On February 12, 2005, prior to bidding, Addendum 3 to the Specifications was issued to all prospective subcontractors. P-25. Addendum 3 revised the base course Specifications by allowing for a higher percentage of fines in the base course material, thereby providing for the use of a less rapidly draining material. Street, Tr. 3, 84:25-87:8; P-25, Specification § 02721. After Addendum 3 was issued, the Joint Venture was aware that the existing base course likely was not “rapid draining” material. Mr. Street testified:

Q: Am I right you understood when you looked at that new gradation that this was not rapidly draining material, didn't you?

A: It appears as though it would not make rapid draining. I couldn't tell you unless I saw water interact with it.

Q: But, looking at the numbers themselves based on your experience you at least had a suspicion that this was no longer rapidly draining material, didn't you?

A: Yes.

Street, Tr. 3 at 87:3-16.

At the beginning of the Project, AMEC and the Joint Venture conducted a joint investigation of the existing base course material and engaged in discussions over a period of months to determine whether the existing base course would be adequate for reuse. McQuiston, Tr. 4 at 24:20-23; 27:6-23. AMEC and the Joint Venture conducted a series of engineering evaluations and tests (including cone penetrometer tests and sieve analyses) related to the existing base course during this time. McQuiston, Tr. 4 at 25:6-9; 27:6-23. AMEC determined that a wider range of fines passing the No. 200 sieve would be acceptable for the base course

material on the Project, given the strong performance of the existing base course material on past projects on Guam. McQuiston, Tr. 4 at 27:6-23; Tr. 19 at 81:25-82:8.

The Joint Venture also appeared to be satisfied with the reusability of the existing base course material. McQuiston, Tr. 4 at 87:17-23; 88:24-89:2; see also P-102. In the Joint Venture's October 2005 Request for Information ("RFI") to AMEC, the JV stated that "It is our opinion, base[d] on experience, but not on design analysis, that the existing base material condition should be sufficient for PCCP pavement." P-102. Therefore, the JV was "willing to leave the existing material in place, or to salvage portions and remove portions or to remove all, as directed by AMEC." P-102.

AMEC contends that any problems experienced by the JV related to the base course, including ponding of rainwater, resulted from the JV's own deficiencies and the JV's failure to comply with its contractual obligations during the Project. As the JV's own expert testified at trial, ponding may occur even on "rapid draining" material where "there is no drainage method employed so that water can move away from the base course material." Pita, Tr. 12 at 35:4-8; 34:14-17.

Subcontract Specification § 2301 ("Earthwork: Excavation, Backfilling, and Compacting") required the JV to submit a "dewatering" plan that "shall describe methods to be employed in removing water from exposed surfaces and diverting surface water from other areas or structures." P-6 at 02301-5. The JV submitted a Dewatering Plan in June 2005, which indicated that, after a rainfall, the JV would use a sump pump positioned on the lowest elevation points to collect the excess water runoff. D-68. If necessary, a sump hole or pit would be dug for the sump pump to be positioned. The collected water would be removed using the pump and the water would be discharged to an adjacent ground area or a mobile water tank. D-68.

AMEC's Project Manager testified that the JV did not consistently implement this Dewatering Plan. McQuiston, Tr. 19 at 191:21-193:4.

Additionally, pursuant to Specification, § 2301-3.01(B)(1), the Subcontract mandated that "[s]urface water shall be directed away from excavation and construction sites so as to prevent erosion and undermining of foundations." P-6. Where water did accumulate, the Joint Venture was contractually obligated to remove water by pumping or other methods to prevent softening of exposed surfaces. P-6 at § 2301-3.01(B)(2). After reviewing the Joint Venture's dewatering plan, Mr. Robertson conceded that the Joint Venture always expected to perform dewatering during its earthwork and pavement activities after heavy rainfalls. Robertson, Tr. 10 at 85:1-13. Accordingly, dewatering work does not constitute unplanned or extra work. Robertson, Tr. 10 at 86:17-22. Moreover, if the Joint Venture knew that the material was not rapid draining at the time the Contract was executed, then dewatering work, including digging a sump pump and positioning a sump pump, does not constitute extra work. Robertson, Tr. 10 at 87:4-91:9.

In addition, AMEC contends that the method by which the Joint Venture chose to place concrete resulted in ponding. Although the Air Force specifically requested that the Joint Venture pave from the center of the Runway to the outer lanes, the Joint Venture instead elected to place the concrete using an "outside-in" approach. The parties dispute the relative advantages and disadvantages of paving "outside-in;" however, at least one JV witness conceded that concrete panels placed first on the outer lanes might collect water run-off, particularly in low areas. Street, Tr. 3 at 129:14-130:3.

AMEC therefore contends that any ponding that did occur on the Project did not delay the Joint Venture's Work and was anticipated by the Joint Venture at the time of bidding. To the

extent that ponding did occur during the Project, the Joint Venture's superintendent conceded that the ponding did not create a discernible impact on the work. Instead, the Joint Venture's base course work consistently stayed 3,000 feet and one week ahead of the PCCP paving crew at all times, as planned. Panal Dep. at 35:19-25.

With regard to the Joint Venture's claims for additional cost or delay associated with excavating, processing, and transporting existing base course material, AMEC points out that the JV was already required, under several provisions in the Subcontract, to remove any hard material from the existing base course and subgrade. For example, Specification, § 02301-1.04(H) ("Excavation") required:

The removal of soil, rock, or hard material to obtain a specified depth or elevation. The contractor is informed that the material that will be excavated is unclassified and no additional payment will be made for hard material encountered during excavation. Hard material may be required to be trenched with a trencher or ripped and this excavation shall be considered included in the price offer for the project.

P-6.

Likewise, Specification, § 02301-1.09 ("Contract Basis") indicates that the Subcontract will be based upon the following criteria:

The character of the material to be excavated or used as subgrade is as indicated. In addition to rock [. . .], hard material in the form of conglomerate clay, sand, silt or gravel, volcanic tuff, weathered basalt, consolidated calcareous marine sediments, and limestone formations, will be encountered. Remove such hard material to the lines and grades indicated regardless of the hardness or quantity. As per Section 1.6, the work is considered unclassified excavation; removal of hard material to the lines and grades indicated shall not give cause for a claim for additional compensation regardless of hardness or difficulty in removing.

P-6.

Accordingly, a certain amount of excavation was already contemplated by the Subcontract, and by the JV.

When base course material was no longer readily available in one section of the Runway, AMEC directed the JV to obtain material from another phase. Access to the additional 2000 feet of runway located in Phase 2 yielded additional base course material to complete the construction without the immediate need to purchase base course material. Street, Tr. 1 at 149:2-151:9.

The JV had a plan in place at the beginning of the Project which included hauling material for fill areas from “wherever it was found to wherever it was needed.” Street, Tr. 3 at 97:21-98:2. The JV’s plan also anticipated “scarification” (breaking up and loosening) and/or removal of unsuitable material. D-787; see also Street, Tr. 3 at 98:3-15. The JV understood that “[t]here was no guarantee that there was always going to be a perfect cut [and] fill situation within 100 feet” on the Project. Street, Tr. 3 at 97:7-98:2. Instead, it would be necessary to haul material from where it was found to wherever it was needed. Id. at 97:24-98:2.

Mr. Street further conceded that any out-of-sequence excavation work in the Phase 2 location would ultimately be performed at some point during the Project. Street, Tr. 3 at 100:24-101:1). As such, AMEC argues, that excavation cannot be considered additional work not contemplated by the Subcontract. With regard to any extra hauling, the Court heard testimony that the JV also knew that some hauling would be necessary during construction, as there was not “always going to be an in-station perfect cut and fill scenario.” Street, Tr. 3 at 101:16-22.

Nothing in the Subcontract or the Technical Specifications makes any representations about how far base course would have to be transported for reuse. On the contrary, the Project drawings make it clear that the JV would be required to relocate base course for use.

McQuiston, Tr. 19 at 186:11-187:2. Finally, Mr. Panal, the base course superintendent, testified that this entire process—that is, hauling base course material from Phase 2 to Phase 1—took no

more than a “30 minutes span.” Panal Dep. at 72:23-73:12.

With regard to the JV’s claim that there was insufficient quantity of existing base course at various times, AMEC argues that the JV’s decision to leave the rough grade higher than necessary and then return to finish the grade also increased the JV’s need for base course material, which might have been available in sufficient quantities if the JV had cut the base course to finish grade in one pass. Toelkes Dep. at 41:20-42:19. Mr. Street testified that it had always been the JV’s plan to leave the base course material high on top to protect against potential rain. Street, Tr. 3 at 98:16-25.

Ultimately, AMEC authorized the importation of an additional 18,000 tons of base course material. P-132. This additional amount of base course material was sufficient to complete work on the Project. Panal Dep. at 76:10-14. The JV was granted a Change Order for the additional costs related to importation of base course material. McQuiston, Tr. 19 at 194:7-9. Imported base course was paid for on a per ton basis, using the JV’s previously quoted price of \$17 per ton. McQuiston, Tr. 19 at 193:19-194:6; see also P-107.

AMEC notes that none of the JV’s monthly Construction Schedule Updates indicates that the JV suffered critical path delay as a result of a lack of aggregate base course. Likewise, the JV’s contemporaneous daily records do not contain any indication that a lack of “sufficient grade” impacted the performance of the work on the Project. To the contrary, the JV’s superintendent testified that the PCCP paving crew remained 3,000 feet behind the base course work, as planned, even after the decision to import base course. Panal Dep. at 35:19-25; 86:13-87:2.

C. Conclusion

The Court agrees with the JV that AMEC’s decision to relax the technical specifications

regarding gradation and direct the processing and re-use of existing base course material constitutes a constructive contract change. However, as to the JV's delay and cost claims related to base course, the Court agrees with AMEC that the JV was aware both at the time of bidding (after AMEC issued Addendum No. 3) and very soon after commencing work on the project that the existing base course material was not "rapid draining," and that the JV did not prove at trial, by a preponderance of the evidence, that use of that material delayed the critical path of the Project. To the extent that use of the existing base course material *did* delay the critical path, the JV did not prove at trial that any delay was attributable to AMEC's decision not to exercise Civil Option No. 5, rather than to the JV's own decisions, deficient work, or failure to mitigate the effects of using the existing base course (such as lack of trucks to transport materials, failure to build sufficient rain delay days into the Project schedule, failure to adhere to the JV's own de-watering plan, or the JV's decision to delay cutting the base course down to "finish grade" level until just prior to paving).²¹

Furthermore, although the Court does not agree that the JV's acquiescence to AMEC's direction to re-use existing base course necessarily amounts to a "waiver" of all claims associated with base course issues, the Court holds that the JV did not provide AMEC with sufficient contractual or constructive notice that the JV was experiencing delay or additional costs that the JV attributed—*at the time*—to use of non-rapid-draining material. Although Mr.

²¹ Under Nevada law, there is a duty imposed on the plaintiff to mitigate its damages. As a general rule, a party cannot recover damages for losses that could have been avoided by the exercise of reasonable care. Conner v. S. Nev. Paving, 741 P.2d 800, 801 (Nev. 1987) (recognizing a contractor's general duty to mitigate damages after a breach); Virgin Valley Water Dist. v. Vanguard Piping Sys., Inc., No. 09-309, 2011 U.S. Dist. LEXIS 5569, at *5-8 (D. Nev. Jan. 15, 2011) (discussing the general duty to mitigate contract damages under Nevada law); Appeal of Signal Contracting, Inc., ASBCA No. 44963, 93-2 BCA ¶ 25,877 (finding that the contractor did not satisfy its duty to mitigate damages where (i) upon the inception of delay in one area, it failed to turn its efforts to other outstanding work; and (ii) it failed to provide timely notice to the government to enable it to take mitigating actions).

Robertson testified that, as soon as he saw the base course material, he knew it wasn't rapid draining, the JV did not provide AMEC notice of a claim related to the use of non-rapid draining material within the contractual time period. Robertson, Tr. 10 at 93:6-19. The JV first mentioned its alleged concerns about the use of material that was not "fast draining" on September 18, 2006. P-130. The JV failed to mention any concerns about the material not being "fast draining" and/or alleged ponding problems in any of its earlier letters discussing base course material. Robertson, Tr. 10 at 93:20-96:8. It is also clear that a substantial portion of the work associated with excavating, transporting, or processing the existing base course material was already contemplated by the Subcontract and accounted for—or should have been accounted for—in the JV's bid. To the extent that processing the existing base course resulted in *additional* work, the JV agreed to AMEC's request that the JV reuse existing base course (and therefore to perform the additional work associated with that reuse) as much as possible. While that agreement does not constitute a waiver of all claims associated with that work, the JV did not present evidence at trial to show that it provided timely contractual or constructive notice of those claims.

Finally, however, the Court holds that the JV *did* provide sufficient contractual and constructive notice of the delays and/or cost directly associated with the sink hole and related base course issues between Station 40 and Station 60 in May and June of 2006. As AMEC acknowledged that this was a "differing site condition and AMEC will be responsible for paying our subcontractor," AMEC is liable for the costs and delays (to the extent those delays impacted the critical path of the Project) directly associated with the later repair and/or replacement of that work.

IV. THE JV'S PORTLAND CEMENT CONCRETE PAVING CLAIMS

A. JV-Caused Delays and Deficiencies

1. Inadequate Concrete Paving Equipment

It is not disputed by the JV that, in addition to delayed cement deliveries, inadequate concrete paving equipment—specifically, the Wirtgen brand paver located on-island—delayed the commencement of PCCP production work. Robertson, Tr. 10 at 18:20-20:5; D-161. Pursuant to the Subcontract, Section 03300, Portland Cement Concrete Pavement, Part 1.05, “Test Section,” the JV was required to perform a test section meeting all specification requirements “[a]t least 10 days but not more than 60 days prior to construction of the concrete pavement Production paving may be started immediately after the results on aggregates and concrete, including evaluation of the cores, and all pavement measurements for edge slump, joint face deformation, actual plan grade, surface smoothness and thickness have been submitted and approved.” P-6; Robertson, Tr. 10 at 43:13-17.

The JV placed the first PCCP test section on January 17, 2006. The test section did not meet the specification requirements for edge slump and joint face deformation. During the period between January 17, 2006 and February 2, 2006, the JV completed four trial runs and four additional test sections with the Wirtgen paving machine. Not one of the test sections met all specification requirements. Robertson, Tr. 10 at 43:13-44:6; D-152. During this period, the Wirtgen paver also experienced three mechanical and/or electrical failures. Robertson, Tr. 10 at 44:7-16; D-152.²²

By letter dated February 1, 2006, Mr. McQuiston wrote the JV to follow-up on discussions regarding the schedule delays and poor performance of the JV’s selected concrete paving equipment:

²² Very convincing photographic evidence of the Wirtgen paver’s deficient work—by itself, and in contrast to the excellent work of the Gomaco paver— was presented by AMEC at trial.

As you are aware from our discussions this week, the project is currently 60 days behind schedule based on a scheduled concrete pavement start date of December 7, 2005 and the fact that concrete pavement production is not prepared to start before Monday, February 6, 2006.

In addition, the Wirtgen Paver has proved to date to not be productive. During 4 trial runs and 4 test sections to date, the Wirtgen Paver and IBC have not been able to produce an acceptable test section meeting all the project specifications. During those 8 attempts which totaled probably 20 hours or less of Wirtgen Paver operation, the Wirtgen has had 3 different mechanical or electrical failures...

AMEC is requesting that IBC develop a plan to address the ability to meet the pavement specifications and meet the schedule completion date. AMEC requests that IBC take corrective action and consider use of alternate paving equipment and review the schedule to determine ways to improve upon the schedule performance. AMEC requests that IBC respond to this letter within 7 days with a plan to get back on schedule.

D-152.

On February 6, 2006, the JV acknowledged that the Wirtgen slip-form paver “was still not performing correctly.” D-152 (“By the end of this week, we will know whether the Wirtgen slipform paver can meet the project requirements and we expect that it will. Please note that corrective action is being undertaken and this will continue with all diligence until we are able to commence production paving.”). On or about February 9, 2006, Jim Street informed AMEC that the JV had begun the search for alternate paving equipment. Mr. Street requested, however, that the JV be permitted to move forward using the Wirtgen paver on outer lanes until the new equipment could be leased and mobilized to the Project site. D-133.

Test Section No. 5 also failed to meet the specification requirements. Robertson, Tr. 10 at 43:2-44:6; D-152. The JV placed Test Section No. 8 on or about February 11, 2006; it did not meet the specifications requirements for longitudinal smoothness. However, AMEC obtained approval of the Air Force to accept Test Section 8 and the JV was approved to begin concrete

production paving on February 20, 2006.

On February 23, 2006, the JV provided a “Schedule Recovery Plan,” which included an agreement to work six days per week, and an agreement to import a Gomaco 2600 slipform paver from Utah at the JV’s expense. D-147.

2. Inadequate Rain Protection Measures

Additionally, the JV failed to provide the rain protection originally planned and bid for the Project. In its initial Technical Proposal, the JV indicated that it would have the ability to cover 1000 feet of pavement with a portable suspended tarp. Street, Tr. 3 at 160:16–161:6; D-20 at AMEC0076793. Money for this rain protection was included in the JV’s bid for the Project. Street, Tr. 3 at 45:24–46:5. Instead, at the beginning of the Project, the JV’s rain protection equipment consisted of approximately 400 feet of plastic rolls deployed by and behind the curing machine, which was generally more than 100 feet behind the paving machine that was placing concrete. Street, Tr. 3 at 161:10–162:8; Robertson, Tr. 10 at 104:5–8. Later, the JV added a 500 foot suspended tarp, expanding the total possible coverage to 900 feet. Robertson, Tr. 10 at 108:4–109:3.

B. The JV’s Claims Related to Rain Damage

1. The Specifications

The JV claims that AMEC wrongly and unreasonably directed the JV remove and replace a large number of allegedly rain-damaged concrete panels which the JV contends were not “damaged” within the meaning of the Subcontract, and therefore should have required only repair, rather than removal and replacement. The parties dispute the definition of “damage” and “damaged” as set forth in Specification § 03300-3.04(A) “Placement and Protection During Inclement Weather” which provides:

“At all times when placing concrete, the Contractor shall maintain on-site sufficient waterproof cover and means to rapidly place it over all unhardened concrete or concrete that might be damaged by rain. Placement of concrete shall be suspended whenever rain, high winds, or other damaging weather *commences to damage the surface or texture of the placed unhardened concrete, washes cement out of the concrete, or changes the water content of the surface concrete.* All unhardened concrete shall be immediately covered and protected from the rain or other damaging weather. *Any slab damaged by rain or other weather shall be completely removed full depth, by full slab width, to the nearest original joint, and replaced at the Contractor’s expense*”

P-6 (emphasis added).

AMEC argues that Specification § 03300-3.04 “clearly and adequately defines the type of rain damage that will require removal and replacement as damage to ‘the surface or texture of the placed unhardened concrete, washes cement out of the concrete, or changes the water content of the surface concrete.’” AMEC’s FOF/COL ¶296. The Court does not agree. The plain language of the Specification states that placement of concrete shall be suspended whenever rain commences to “damage” the surface or texture of the unhardened concrete, washes cement out of the concrete, *or* changes the water content of the surface concrete. As written, surface or texture damage is not *defined as* cement wash-out or alteration of surface water content; rather, *placement* of concrete shall be suspended in one or more of three alternative—but separate—scenarios. This is not to say that excessive cement wash-out or dramatic alteration of surface water content could not cause “damage,” but the mere fact that some cement has washed out of the concrete or the water content of the surface concrete has changed in some measure does not necessarily mean that the concrete has been “damaged.” Furthermore, the directive to remove and replace a slab applies *only* to those slabs actually *damaged* by rain or other weather, and not to slabs merely affected by rain in some way.

Where, as here, a term of art such as “damage” is undefined within the four corners of the contract, the Court looks to industry standards for guidance in interpreting the term. The Court heard ample testimony at trial that the industry standard for determining whether rained-on concrete is sufficiently affected to require either repair (by grinding or grooving) or removal and replacement. Where the concrete is affected to such an extent that only *repair* is required, the Court holds that it is not “damaged” within the meaning of the Subcontract, which would otherwise unreasonably require removal and replacement, contrary to industry practice. (However, for the sake of simplicity, the Court will continue to refer to those portions of the surface concrete which were at all affected by rain as “rain damaged.”)

The JV’s concrete expert Robert LaFraugh testified at trial that slip-form paving and the use of angular aggregate—as utilized on the Project—produces a low slump, low water-cement ratio concrete with a very dense surface, which resists downward penetration of rain and standing water and therefore makes it less susceptible to rain damage. R. LaFraugh, Tr. 13 at 13:10-14:1, 14:22-15:9, 15:15-24. As set forth by the American Concrete Paving Association (“ACPA”), a rain event during paving seldom necessitates removal of the concrete:

If a rain event does occur before a pavement has hardened sufficiently, remedial measures may be necessary, but the pavement does not normally require removal and replacement. Less invasive and costly techniques can be used to restore the pavement to a good-as-new condition.

Id. at 20:8-21:17 (quoting ACPA, R&T Update No. 4.04, How to Handle Rained-On Concrete Pavements (April 2003) (*available at* <http://www.pavement.com/Downloads/RT/RT4.04.pdf>)).

The appropriate remediation measure for rain-impacted concrete generally depends upon the depth of the damage. Only rain damage deeper than a quarter of an inch generally warrants removal and replacement; damage within a quarter of an inch can be fully repaired by remediation measures such as grinding or grooving, while damage to less than one-sixteenth of

an inch generally requires no remediation of any type. R. LaFraugh, Tr. 13 at 21:8-23:6, 25:23-26:13.

AMEC's own personnel, including Paul Okamoto of Concrete Testing Laboratories, Inc. ("CTL"), who was hired by AMEC to "provide independent concrete pavement expertise" (P-49 at 7; see also McQuiston, Tr. 6 at 20:21-21:12), agreed that surface grinding of panels is considered appropriate where surface rain damage is less than a quarter-inch in depth. Based on Mr. Okamoto's findings and recommendations, Mr. McQuiston informed the Air Force that grinding is considered "routine" repair for rain damage within one quarter of an inch and can, in some case, produce a "better" surface than other surfaces:

Grinding is a routine repair for concrete that is impacted by rain; in the opinion of Mr. Paul Okamoto, if the rain damage has not penetrated below [one quarter] inch, the ground surface that is produced actually provides a better and more uniform surface than the broom finished surface produced by normal paving operations.

P-253 at 5; see also P-235; P-252.

Mr. McQuiston reiterated these findings in an internal email: "According to Paul Okamoto if the rain damage penetrates less than [a quarter of an inch] then grinding will actually provide a better surface [than] what exists on the remainder of the runway surface." P-245. McQuiston later noted that there was "no benefit" in removing panels instead of grinding them (P-59 at AMEC0114028), and stated that grinding is a standard practice in the paving industry. P-196 ("[T]he grinding [the JV] requested is a standard practice in the industry if it does not exceed [one quarter inch]" depth.').

There are several established methods by which to determine whether concrete requires removal and replacement. At a minimum, a basic "scratch test" can be performed to determine the depth of surface damage. R. LaFraugh, Tr. 13 at 26:14-27:15; see also Kondziolka, Tr. 20 at

97:22-98:16 (performing scratch test on Lot 9). A more elaborate but more reliable method involves performing “petrographic microscopy” on cores drilled from suspect areas.²³

Against AMEC’s own opinion and recommendations regarding repair, the Air Force demanded removal and replacement of concrete panels impacted by rain, regardless of the extent of damage. Complained Mr. McQuiston in an internal email dated July 31, 2006:

I talked to Paul about this and I am questioning whether we are making sound engineering decisions or if we are making bad decisions because it is what the irrational client wants. . . . I think that we should be doing the right thing and the correct thing from an engineering standpoint. Not making bad decisions because [the Air Force] said so.

P-245.

In addition, by incorporating TM 5-822-7, Standard Practice for Concrete, from the U.S. Army Corps of Engineers Technical Manual (*available at* http://armypubs.army.mil/eng/DR_pubs/dr_a/pdf/tm5_822_7.pdf), the Subcontract Specification provides that, even where constructed pavement surface texture is determined to be “inadequate due to . . . rainfall on insufficiently hardened concrete,” “grooving or grinding”—rather than wholesale removal and replacement—may restore the surface of the concrete. TM 5-822-7 at 22; P-6, §03300-17. Nevertheless, AMEC continued to direct the JV to remove and replace concrete regardless of the depth of the rain damage.

Because the Subcontract specifies that only those slabs actually damaged by rain or other weather must be removed and replaced, the Court finds that AMEC’s direction to the JV to repair or remove and replace concrete lots and panels that were merely impacted or affected by rain, regardless of the depth of that effect, constitutes a constructive contract change for which

²³ According to the American Concrete Paving Association, “[b]efore considering removal and replacement of rain-damaged pavement, it is advisable to send a few cores to an experienced petrographer for analysis of the concrete’s water-cement ratio, air content, air-void spacing factor, and general appearance using ASTM C 856.” R. LaFraugh, Tr. 13 at 27:14-28:24.

the JV should be duly compensated.

This compensation is limited, however, to those panels where the JV has presented evidence sufficient to show that the surface damage was minimal. Accordingly, the JV is entitled to compensation for the cost of grinding Lots 9 and 35. The JV is also entitled to compensation for nine of thirty-eight removed panels that AMEC knew and acknowledged (internally, that is) did not require replacement. P-265 (“ . . . I don’t see any benefit or value in telling them that they don’t have to remove any less than the 38 they are proposing.”) Finally, the JV is entitled to compensation for grinding 104 panels that were shown to have less than 1/16 of an inch of surface damage. The JV is not entitled to compensation for the remaining claimed lots or panels.

This compensation is also limited to the *cost* of the repair or removal and replacement. In light of the JV-caused delays to cement delivery and paving, which pushed paving work into Guam’s rainy season, the very limited number of rain delay days built into the Project schedule, and the inadequate protective covering provided by the JV during paving, the JV has not proved that AMEC’s directives with regard to rain damaged concrete impacted the critical path of the Project.

As to the JV’s claim that remediation by grinding was unnecessary and duplicative, because the entire area was slated to be “grooved” by another subcontractor at the conclusion of the Project, the Court finds that the JV did not provide sufficient contemporaneous notice of this claim to AMEC.

Finally, the Court holds that the 26 days or partial days of delay attributed to AMEC due to “threat of rain” or to AMEC’s “unreasonable concerns about rain damage (threat of possible rain)” (P-570), are simply not supported by the evidence presented at trial. Again, in light of the

extensive JV-caused delays to paving, inadequate scheduled rain-delay days, and insufficient measures for dealing with paving in the rain, the Court cannot conclude that AMEC is liable for this period of delay. In only a few instances did the JV show that AMEC directed the JV to stop paving due to rain or threat of rain. The evidence at trial showed that, on the whole, the JV itself chose when to pave or not pave, based on the threat of rain—those choices may indeed have been motivated by the JV’s fear that AMEC might later require remediation of rained-on concrete, but the decision not to pave was nonetheless voluntary. Moreover, the Court does not find that the JV provided adequate notice to AMEC that it intended to seek delay damages based on AMEC’s “unreasonable concerns about rain damage.”

C. Hand-Finishing Issues

The JV also contends that AMEC unreasonably prevented the JV from performing the hand-finishing work required to prevent voids, tears and resulting spalls in the placed concrete. Hand finishing is a method of smoothing out placed concrete by hand, usually with a hand edger.

With regard to “hand finishing” placed concrete, Specification § 03300 - 3.07(D)

“Required Results” provides in pertinent part:

The paver-finishing operation shall produce a surface finish free of irregularities, tears, voids of any kind, and any other discontinuities. . . . *The equipment and its operation shall produce a finished surface requiring no hand finishing other than the use of cutting straightedges, except in very infrequent instances.*

P-6 (emphasis added).

Specification § 03300-3.09(B), “Machine Finishing with Slip Form Pavers,” provides:

The slip form paver shall be operated *so that only a very minimum of additional finishing work is required* to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary.

P-6 (emphasis added).

Specification § 03300 - 3.09, “Finishing,” provides in part:

The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. *Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum.* Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Every effort shall be made to prevent bringing excess paste to the surface and any operations which produce more than 1/8 inch of paste (mortar, water, laitance, etc.) over the top layer of coarse aggregate shall be halted immediately and the equipment, mixture, or procedures modified as necessary.

P-6 (emphasis added).

The parties dispute the “minimum” amount of hand finishing necessary to achieve a smooth concrete surface on this Project. The JV contends that the Subcontract, while specifying that hand finishing shall be kept “to an absolute minimum,” does not “objectively quantify the amount of allowable hand finishing.” JV’s FOF/COL ¶347. The JV further contends that a certain amount of hand finishing was necessary to close up voids and tears on the surface of concrete, which were the natural result of a PCCP mix that included crushed coral. AMEC, on the other hand, contends that excessive hand finishing can bring excess paste (the water/cement mixture that binds the concrete aggregate) to the surface of the concrete, creating a weak upper layer particularly susceptible to spalling and Foreign Object Debris.

Regardless of the degree of hand finishing truly necessary here, the JV did not present sufficient evidence at trial to prove that the voids and tears that did occur—and the spall repairs those voids and tears required—would have been prevented by permitting the JV to perform more hand finishing than it did.

D. Spall Repair Issues

The JV claims that AMEC is responsible for the delay and cost associated with the

removal and replacement of a large number of failed “spall” repairs,²⁴ because the Subcontract specifications regarding the material to be used for spall repair were defective in requiring the JV to use a very “low slump” mixture to repair spalls.²⁵

The Specification provides that:

The prepared cavity shall be filled with: Portland cement concrete or latex modified mortar for larger cavities . . . Portland cement mortar for cavities between 0.03 cu. ft. and 1/3 cu. ft.; and latex modified mortar for those cavities less than 0.03 cu. ft. in size. Portland cement concretes and mortars shall be very low slump mixtures, [half an] inch slump or less, proportioned, mixed, placed, consolidated by tamping, and cured, all as directed. Proprietary patching materials may be used, subject to approval by the Engineer.

P-6 at 03300-40, Part 3.14D.

The parties dispute whether the Specification requires a party who chooses to use “proprietary patching materials” rather than Portland cement concrete or mortars must also adhere to the half-inch slump requirement. AMEC contends that, where a party chooses to use a proprietary patching material, the half-inch slump requirement does *not* apply. Kondziolka, Tr. 20 at 121:14-19. Rather, the JV was simply expected to follow the manufacturer instructions for mixing the proprietary product. Id. at 120:14-19. Based on the plain language of the Specification, the Court agrees.

The JV chose to use a proprietary patching material involving FLEX-CON latex, rather

²⁴ A spall is a small piece of concrete that chips off of hardened concrete, leaving a void or tear in the concrete surface. R. LaFraugh, Tr. 13 at 44:18-45:15. Excessive spall repairs and defective spall repairs increase the risk of creating dangerous foreign object debris (“FOD”) on the runway, where a large portion of good concrete has been removed and patched with a spall repair material that may not be as durable as the original concrete. Id. at 46:6-12.

²⁵ “Slump” is a standard test to determine the fluidity of concrete, varying from no slump at all, to approximately 11.5 inches of slump. Low slump is very stiff concrete, and high slump is very fluid concrete. Concrete with a slump of half an inch or less would be very stiff, and, as the JV’s concrete expert explained, both difficult to compact and to work with. R. LaFraugh, Tr. 13 at 55:15-56:5.

than Portland cement, to fill in the spalls. AMEC's concrete expert, Paul Okamoto, calculated and produced containers for the JV to use in volumetric proportioning of the spall repair mixture. P-331; R. LaFraugh, Tr. 13 at 63:7-13, 67:5-18; Street, Tr. 2 at 130:19-134:11. The JV adhered to the slump requirements of the Specifications in accordance with the proportioned mix set forth by Mr. Okamoto. Id.²⁶

In October 2006, AMEC discovered that "numerous" spall repairs placed by the JV were disintegrating, and AMEC directed the JV to determine the cause of the deficiency. P-343. AMEC originally contended that the defective spall repairs were due to "poor workmanship" and the JV's "failure to properly apply the spall material before it set up." P-351. AMEC performed "hammer tests" or "sounding tests" on the spalls repairs, whereby a spall repair was tested based upon the sound it made when struck by a hammer. McQuiston, Tr. 6 at 155:5-156:17; see also R. LaFraugh, Tr. 13 at 57:24-58:10. These tests indicated that approximately 7% of the spalls had failed. P-348. AMEC determined that approximately 91% of the repairs were acceptable. P-348. According to AMEC, if only a small number of the repairs were defective, it seemed logical that this was not a design flaw and the JV had instead erred in its application of the defective repairs. See P-343; P-351.

The JV subsequently hired the engineering firm Wiss Janney Elstner ("WJE") and concrete expert Robert LaFraugh to perform petrographic testing on these spall repairs. WJE examined a "good" spall repair (which had passed a hammer test) and a "bad" spall repair (which

²⁶ At trial, Defense counsel objected to any attribution of fault to Mr. Okamoto, because, during Mr. Robertson's examination, the JV's counsel had stated that no fault would be assigned to Mr. Okamoto, and Mr. Robertson had therefore not been cross-examined regarding Mr. Okamoto's role in designing the spall repair mixture. In response, the JV's counsel confirmed that no "fault" was to be assigned to Mr. Okamoto for his participation in preparing the spall repair material, or for directing the JV to mix the material to specific proportions; the JV sought only to show that the specifications themselves were defective. Tr. 13 at 67:21-69:19. The Court therefore accepts the JV's representation at trial, and assigns no liability to AMEC based on Mr. Okamoto's role in the spall repair design process.

had failed the hammer test). WJE's testing revealed that even those spall repairs which passed the hammer tests (*i.e.*, the "good" spall repairs) were defective and needed replacement. P-565. Both of the samples tested by WJE were found to be very porous with air contents estimated to be 17 to 30% (8 to 9% is considered normal). Additionally, the paste content in both samples was found to be "very low," which prevented them from being consolidated into a dense mortar. P-565 at 2 (of 12/30/06 letter); R. LaFraugh, Tr. 13 at 58:14-62:21.

Because all of the spall repairs were originally placed with the same methods and criteria, WJE recommended that "all of the repairs be removed and replaced." P-565 at 2 (of 12/30/06 letter). In addition to determining that the so-called "good" spall repairs also required replacement, WJE also analyzed the cause of the failures. WJE determined that a slump of half an inch or less—as mandated by the Specifications—resulted in a "dry pack" mortar that cannot be properly compacted by ordinary methods and resulted in porous, low strength spall repairs:

Latex modified mortar is intended to be mixed and placed with a more workable consistency than stated [in the Project Specifications], usually in the 2 to 4-in. slump range. The [half inch] or less specification results in a 'dry pack' mortar that cannot be properly compacted by ordinary methods. Furthermore, the low specified slump does not allow the introduction of sufficient latex additive to achieve proper consistency and performance.

Adherence to the low slump specification resulted in the porous, low strength spall repairs represented by the samples... Since using the recommended amount of latex will result in the mortar having a slump greater than [half an inch], it may be advisable to seek AMEC's concurrence with this higher slump prior to proceeding with the removals and replacements.

P-565 at 2-3 (of 12/30/06 letter); R. LaFraugh, Tr. 13 at 56:1-57:19, 72:12-15.

In January 2007, Mr. LaFraugh traveled to Guam to assist in the development of a new mix design for the spall repairs. Mr. LaFraugh devised a mix with a slump range of 5 to 6 inches, which proved workable. R. LaFraugh, Tr. 13 at 64:2-65:3, 70:24-71:16. David

Kondziolka of AMEC agreed that this new mix design was more workable than the prior mix design. Id. at 65:8-21, 66:22-67:3, 70:7-70:23, 80:13-81:2. AMEC therefore agreed to “waive” the alleged requirement in the Specifications that the spall repair have a half-inch slump or less. Id. at 70:24-71:16. AMEC continued to disagree, however, that the JV was required to adhere to the low slump specification where it chose to use a proprietary patching material rather than Portland cement concrete. Id. at 71:17-72:8.

Based upon the recommendation of WJE, the JV removed and replaced *all* of its prior spall repairs, which totaled approximately 700-800 spall repairs. Street, Tr. 2 at 135:23-137:9. The JV contends that AMEC is liable for the spall repairs that the JV removed and replaced because the low slump specifications in the Subcontract were “defective.” The JV claims that it followed the specifications provided by AMEC and otherwise complied with the requirements of the subcontract, but the JV could not consistently produce an acceptable result because the specifications were defective. Under the Spearin Doctrine, AMEC would be therefore be liable for the consequences of such defects since AMEC implicitly warranted “that satisfactory performance will result” if the JV properly followed the design specifications. Spearin, 248 U.S. at 137. Generally, design specifications contain an implied warranty that if the contractor adheres to the specifications, the result will be acceptable. Ehlers-Noll, 34 Fed. Cl. at 499. Where the general contractor specifies a particular method of performance or a particular process a subcontractor is to follow, the general contractor warrants that the process will work. See id.

First, AMEC argues that there is insufficient evidence to show that the spall repairs failed due to the JV’s use of a low slump material, rather than due to other factors, such as inadequate mixing by the JV (R. LaFraugh, Tr. 14 at 71:17-25), or the possibility that the JV used the spall repair material after its “pot life” had expired and it had dried out. P-356; McQuiston, Tr. 6 at

162:12-24. Second, AMEC argues that the JV chose its own proprietary latex patching material, and, because the Subcontract specifications did not impose a low slump requirement on proprietary patching material, AMEC is not liable for the JV's initial failure to follow manufacturer instructions in mixing the product. Finally, AMEC argues that the JV itself chose to remove and replace all 700-800 spall repairs, of which AMEC had rejected only a small percentage. R. LaFraugh, Tr. 13 at 71:17-72:8; Street, Tr. 3 at 173:15-174:1.

Although the Court finds that the specification to use a very low slump mixture when employing Portland cement concrete as a spall repair material likely *was* defective, the JV chose instead to use a proprietary patching material, to which the low-slump requirement did not apply, pursuant to the language of the Subcontract. In light of the fact that the JV has conceded that no fault is to be assigned to AMEC's own concrete expert, Paul Okamoto, for his participation in the original spall repair mix design, the Court cannot find AMEC liable for directing the JV to mix to a half-inch slump.

Finally, although the Court commends the JV for its conscientious removal and replacement of all the potentially defective spall repairs, the JV chose to remove the majority of those repairs—which AMEC had not rejected—without seeking either AMEC's direction, or AMEC's prior approval and agreement to pay for the additional time and expense associated with the work. Accordingly, the Court holds that AMEC is not liable for delay or the JV's additional costs, including consulting costs, associated with the testing, removal or replacement of these spall repairs.

E. The Remediation of Lane 5

1. Background

Under the Subcontract specifications, the Joint Venture's concrete placement was

required to result in concrete free of honeycombing. Specifically, § 03300-3.07(D) (“Required Results”) states:

The paver-finisher, and its gang-mounted vibrators, together with its operating procedures shall be adjusted and operated and coordinated with the concrete mixture being used *to produce a thoroughly consolidated slab throughout*, true to line and grade within specified tolerances.

P-6 (emphasis added).

Lane 5 is one of the heaviest aircraft traffic lanes on the runway. Robertson, Tr. 11 at 15:14–25; R. LaFraugh, Tr. 14 at 6:14–16; McQuiston, Tr. 21 at 38:12-39:15. The concrete in Lane 5 was placed between the previously placed Lanes 4 and 6. McQuiston, Tr. 19 at 121:12-122:3; Robertson, Tr. 11 at 15:5–16:14; D-271. Fresh concrete was placed in front of the slip-form paver by driving dump trucks on Lane 4 and dumping the concrete over the side into Lane 5. The JV then used a SkyTrack model front end loader to spread the fresh concrete in front of the face of the Gomaco paver. Robertson, Tr. 11 at 15:5–16:14; D-271.

On or about June 24, 2006, cores were sampled from the edge of Lane 5 where it interfaces with the edge of Lane 4. These cores exhibited a significant amount of unconsolidated concrete, in the form of voids or “honeycombs,” for the length of the lane. D-270; McQuiston, Tr. 6 at 100:25-101:5. This condition was described in the JV’s daily reports: “[D]id holes all they [sic] way down edge 4 and 5 from 66+00 to 123+70 find Rat holes all the way down looks bad.” Butterfield, Tr. 5 at 178:1–7; D-862 at JV00449411.

Due to the problems discovered, AMEC issued a Stop Work Order on June 24, 2006, in order to prevent further defective concrete from being placed. D-270; Robertson, Tr. 11 at 4:1–6:14; McQuiston, Tr. 6 at 99:21-100:5. AMEC permitted the Joint Venture to resume PCCP paving work on lanes other than Lane 5 on June 27, 2006. Robertson, Tr. 11 at 21:14–26:23; D-278. This stop work order was consistent with both the General Conditions Section 1.13 and

Specification § 3300-3.07(B) (“Consolidation”), which states in part: “...Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) shall require the immediate stopping of the paving operation and approved adjustment of the equipment or procedures.” P-6; Robertson, Tr. 11 at 11:3–12:6.

The JV concedes that, when the stop work order was issued, the problem of honeycombing on Lane 5 constituted defective work, additional paving in Lane 5 was planned, and it was unknown what had caused the problem,²⁷ or whether it was limited to Lane 5. Robertson, Tr. 11 at 4:1–6:14.

The Court heard ample testimony at trial that a joint is one of the “most critical links in a chain that is going to help the runway receive the heavy weight of the airplane.” Carrasquillo, Tr. 22 at 149:25–150:3. At the joint, dowels connect two lanes; these dowels permit the lanes to support one another such that when one lane receives weight from an aircraft, that weight is transferred to the surrounding lanes through the dowels. Carrasquillo, Tr. 22 at 150:4–153:12; McQuiston, Tr. 21 at 37:11-22; Id. 40:15-24; D-988B.

It is also not disputed that unconsolidated or honeycombed concrete on Lane 5 constituted defective work on the part of the Joint Venture. Robertson, Tr. 11 at 30:9–18; 37:8-13; Carrasquillo, Tr. 22 at 153:13–22. Among other things, the presence of honeycombing at the bottom of a slab will have a negative impact on the concrete’s flexural strength. R. LaFraugh, Tr. 14 at 13:22–14:6, 16:1–6. In addition, it potentially compromises the load transfer ability of the concrete because of a reduction in tensile strength. Carrasquillo, Tr. 22 at 153:23–157:2.

Subsequent investigation, which included additional coring, determined that, in fact, there

²⁷ Rodney Butterfield, who was in charge of the crew that operated the Gomaco paver, testified that he believes that the lack of consolidation at Lane 5 was caused by the Joint Venture’s decision not to use a placer belt in front of the paver. Butterfield, Tr. 5 at 181:24-182:14; see also Robertson, Tr. 11 at 16:25-17:16; D-271.

was extensive honeycombing of the concrete along a 5,680 foot length of the Lane 5 edge where it meets Lane 4, also known as the Lane 4/5 joint. R. LaFraugh, Tr. 14 at 5:23–6:6; McQuiston, Tr. 21 at 37:9–40:24; D-988B (photographs of cores). Based on coring samples, this honeycombing was present within a strip at the edge of the pavement of approximately 2 inches wide, and for the full depth of the slab with the exception of the top 2 to 4 inches. D-271; Robertson, Tr. 11 at 12:24–13:8; R. LaFraugh, Tr. 14 at 13:22–14:3.

Due to the limited nature of concrete coring, the full extent, location, proximity to the surface, and continuity of the honeycombing could only be estimated. McQuiston, Tr. 21 at 37:11–22; Id. at 40:5–9; D-988B; Kondziolka, Tr. 20 at 118:9–23. This investigation of the extent of the problem was based on the approximately 11 cores taken along the 5,680 foot length of Lane 5. R. LaFraugh, Tr. 14 at 18:1–9. The honeycombing in the Lane 5 joint was also observed to contain “discontinuous voids,” which means that the voids in the concrete were not all connected. Robertson, Tr. 11 at 64:24–65:2. As a result, some voids would not be directly accessible for adequate repairs—for example, when placing grout—through other voids and surface voids. R. LaFraugh, Tr. 14 at 12:21–13:10.

2. The Preliminary Repair Proposal

In early July 2006, the JV hired an engineering firm, WJE, to determine whether an appropriate remediation plan could resolve the consolidation issues in the Lane 5 joint. WJE is an interdisciplinary firm of structural engineers, architects, and materials scientists specializing in the investigation, analysis, testing, and design of repairs for distressed conditions in structures. Robert LaFraugh headed the effort by WJE to evaluate the Lane 5 issues. P-287.

On July 15, 2006, Mr. Lafraugh issued a preliminary report stating that the consolidation problem was not serious enough to warrant the removal and replacement of Lane 5. P-287 at AMEC0177558-177560. Mr. Lafraugh recommended a repair procedure whereby cementitious

grout would be pressure-injected into the concrete, thereby filling the voids at issue. Id. Mr. LaFraugh concluded that the honeycombing in the concrete was minor and, had it not been discovered, the PCC pavement would likely have performed normally for its expected life span and enabled full load transfer across the joint. According to Mr. LaFraugh, remediation was therefore unnecessary, although the JV intended to perform the grouting remediation procedure anyway. Id.

On August 7, 2006, however, Mr. LaFraugh sent an internal e-mail in which he noted “[w]e have 11 cores representing less than 3 feet of 6,000 feet of apparently affected joint. This is hardly a representative sample size.” D-359; R. LaFraugh, Tr. 14 at 18:4–19. Based on this concern that the 11 cores were not a representative sample size, Mr. LaFraugh asked if it would be possible to take 15 more cores of the Lane 5 joint. D-359; R. LaFraugh, Tr. 14 at 18:4–19. Ultimately, no more cores were taken. R. LaFraugh, Tr. 14 at 18:25–19:2.

Upon reviewing the Joint Venture’s preliminary proposal, AMEC and the Air Force somewhat reluctantly agreed to permit the Joint Venture to make a formal proposal for the remediation of the Lane 5. McQuiston, Tr. 21 at 41:25-44:11. AMEC required any remediation proposal to be submitted no later than August 31, 2006. The Joint Venture agreed with this time frame. Robertson, Tr. 11 at 56:12–58:8.

In discussions with AMEC, the Air Force expressed that their primary concerns were that they wanted a proven repair method that had been successfully implemented and was demonstrated to work. Robertson, Tr. 11 at 50:19–52:5; D-343; see also R. LaFraugh, Tr. 14 at 52:12–21.

In response to this concern, the JV represented to AMEC and AMEC informed the Air Force that their proposed repair method had been used at the Seattle-Tacoma (“Sea-Tac”)

Airport. Mr. LaFraugh later testified at trial that the process of injecting grout into honeycombed areas is an industry-accepted procedure with which he has considerable experience. Specifically, Mr. LaFraugh testified with respect to its prior successful use at Sea-Tac Airport, Salt Lake City Airport, and Miami International Airport, amongst other places. R. LaFraugh, Tr. 13 at 91:19-96:16; McQuiston, Tr. 21 at 42:15-43:9; Robertson, Tr. 11 at 50:11-52:53:9; R. LaFraugh, Tr. 14 at 52:12-21. The parties dispute, however, to what extent these prior repairs were comparable to the repair proposed for Lane 5.

AMEC presented evidence that the Air Force informed AMEC that it had communicated with the United States Army Corps of Engineers (“USACOE”) and discovered that the Joint Venture’s recommended repair method had *not* been used at the Sea-Tac Airport. McQuiston, Tr. 21 at 43:10-22; Robertson, Tr. 11 at 50:19-52:5; D-343. Mr. LaFraugh confirmed at trial that the repairs implemented at Sea-Tac differed somewhat from the JV’s proposed repair. The Sea-Tac project was fixed-form, not slip-form paving and was a taxiway, not a runway. The problem at Sea-Tac was not at a joint between two lanes, but rather, was a horizontal condition between two layers of concrete. Finally, the repair utilized was not simply grout injection, but also included the removal of the top layer of concrete to access the honeycombed concrete. R. LaFraugh, Tr. 14 at 53:9-56:16. The parties dispute whether these differences make the Sea-Tac repair sufficiently dissimilar to be an inadequate example of a prior successful repair.

Additionally, upon learning from the Joint Venture that it was only going to provide a calculation of flexural strength of the concrete repair based on compressive strength testing, AMEC informed the Joint Venture that it was required to provide either flexural strength testing (such as flexural beam testing), or “split-tensile” testing as part of its repair proposal. P-294; Robertson, Tr. 8 at 139:2-14; McQuiston, Tr. 21 at 45:20-47:2; Kondziolka, Tr. 20 at 112:7-19.

WJE, in conjunction with JV personnel, prepared a preliminary grout injection test plan for remediation at Lane 5, with testing scheduled to occur on a trial strip in August 2006. P-287; P-292; R. LaFraugh, Tr. 13 at 97:4-7. Beginning on August 10 and continuing through August 22, WJE, along with JV personnel, conducted testing on a strip of the Lane 4/5 joint at issue.

First, the Nippo laboratory in Tokyo performed tests demonstrating the capabilities of a Mitsubishi grout, which proved successful. R. LaFraugh, Tr. 13 at 97:11-99:4. The next step involved testing the method for inserting the grout. At the request of Nippo personnel, WJE initially performed tests using gravity-fed grout (instead of pressurized grouting), which were not satisfactory. The gravity-fed grout did not fully penetrate the voids in the concrete, and WJE thereafter directed all further efforts and testing toward pumping grout into the joint (instead of relying upon gravity). P-298 at AMEC0116597; R. LaFraugh, Tr. 13 at 90:8-91:18, 99:5-17.

Grout was thereafter pumped into holes drilled into the Lane 4/5 joint. P-298 at AMEC0116597; R. LaFraugh, Tr. 13 at 101:15-102:7. Unlike the gravity-filled grout, WJE's inspection and testing revealed that the pressure-filled grout fully penetrated the voids. Mr. LaFraugh testified that full penetration became evident when grout appeared, not only out of the host vents, but through the tight Lane 4/5 joint in some areas. P-298 at AMEC0116598; R. LaFraugh, Tr. 13 at 102:13-105:4, 143:24-144:14. Additionally, cores filled with pressurized grout were drilled and, upon inspection, showed that the grout had successfully penetrated the voids. P-298 at AMEC0116595; R. LaFraugh, Tr. 13 at 144:4-14. Fully consolidated concrete contains approximately 2 to 3 percent air voids, and the remaining air voids indicated an air void content within 2 to 3 percent. R. LaFraugh, Tr. 13 at 103:18-104:9.

The successful penetration of the grout was confirmed by weight testing performed by WJE, as unit weight is a reflection of its density. Id. at 104:17-105:3. WJE took sample cores of

both the remediated concrete (*i.e.*, filled with grout) and compared its weight with those from fully consolidated concrete (*i.e.*, concrete that was not along the joint). WJE included the test results in its report, showing that the weight of the remediated concrete was effectively equal to that of the fully consolidated concrete. P-298 at AMEC0116603-0116604; see also R. LaFraugh, Tr. 3 at 110:6-112:24. WJE also performed strength testing of the remediated cores via an industry-standard ASTM test that results in a measurement of compressive strength, as measured in pounds per square inch. R. LaFraugh, Tr. 13 at 113:3-23.

WJE reported that these test results demonstrated that the weight and strength of the remediated concrete was effectively equal to that of the fully consolidated concrete:

A review of the table above indicates that the unit weights and compressive strengths of the cores removed from the grouted joint are consistent with the unit weights and compressive strengths of cores removed away from the joint. The cores from the interior of the panels appear very dense and similar to all the cores drilled on the project for thickness measurement. This comparison effectively demonstrates that the full density and strength of the concrete can be restored by the grouting procedure described herein.

P-298 at AMEC0116604.

WJE determined that the proposed injection of cementitious grout would successfully fill the voids along the joint. WJE found that the testing “demonstrated that the resulting density and compressive strength of concrete in Lane 5 adjacent to the joint is equal to that previously measured in the interior portion of Lane 5.” Id. The objective of typical industry and government specifications for repair of concrete “is to restore the structure to its designed condition.” According to WJE, the proposed remediation plan would have accomplished that objective. Specifically, WJE found that “[t]his grouting procedure . . . has been demonstrated to adequately fill voids in the joint. It has further been demonstrated that the resulting density and compressive strength of concrete in Lane 5 adjacent to the joint is equal to that previously

measured in the interior portion of Lane 5.” Id.

WJE also concluded that the successfully restored concrete possessed several characteristics that improved structural integrity: (1) the average 90-day flexural strength for concrete cast as of August 31, 2006 was 887 psi, which is 36 percent higher than the specified requirement (R. LaFraugh, Tr. 13 at 115:23-116:24); and (2) the average thickness of Lane 5 pavement in this area is 17” thick, which increases section modulus and hence flexural strength by 13 percent. P-298 at AMEC0116590.

3. The Final Proposal

On August 31, 2006, the Joint Venture submitted its final Lane 5 remediation proposal in the form of a letter and WJE’s Report of Grout and Concrete Tests with Recommendations authored by Robert LaFraugh (the “Final Proposal”). D-447.

AMEC retained the services of its own outside engineering expert, Paul Okamoto of CTLGroup, to evaluate the Lane 5 issue and evaluate the JV’s remediation proposal. P. McQuiston, Tr. 6 at 120:23-121:5. AMEC forwarded WJE’s report to its expert, Mr. Okamoto, for his review and analysis, and Mr. Okamoto submitted his written findings to AMEC on September 11, 2006. P-300A. Mr. Okamoto’s report expressed agreement with the proposed grouting procedures. Mr. Okamoto recommended that AMEC obtain some additional data and seek some additional testing. Id. Mr. Okamoto did not express any concerns regarding load transfer capability or longevity of the repair. Mr. Okamoto also did not recommend flexural beam testing or load transfer testing. Id.

The JV presented evidence at trial that, prior to issuing its recommendation to the Air Force, a number of AMEC’s expert and relevant personnel approved of the proposed remediation. As stated by Mr. McQuiston on September 13, 2006: “Kondziolka, Okamoto, and

Alex [Costin] believe it could be repaired reasonably with certain precautions and verification to provide an acceptable product.” P-304.

Nevertheless, on September 14, 2006, AMEC announced internally that it had decided to recommend rejection of the JV’s proposed remediation of Lane 5. P-305. On September 18, 2006, AMEC formally recommended that the Air Force reject the JV’s proposed remediation plan and require the JV to remove and replace all of Lane 5. On September 29, 2006, AMEC formally directed the JV to remove and replace Lane 5 from Station 66+90 to 123+70, which is more than a mile long. P-308.

In response to the August 31, 2006 proposal, AMEC identified various concerns on which it claims to have based a recommendation to reject the proposed Lane 5 remediation plan, including: (a) the lack of any flexural beam testing as specifically requested by the Air Force. Instead, the Final Proposal relied solely on the conversion of compressive strength test results to flexural strength values based on conversion factors developed during the Project by comparing compressive and flexural strength between healthy (*i.e.*, not grout-repaired) samples of concrete; (b) the lack of any reference to other Projects on which the proposed method had been used and proved effective as specifically requested by the Air Force; and (c) the lack of any load transfer testing demonstrating that the repaired edge would be able to adequately transfer load between the Lane 5 and Lane 4 slab. See D-544 at JV00034126.

The concerns raised by both AMEC and the Air Force that led to the rejection of the Final Proposal for Lane 5 remediation also included the potential for foreign object debris (“FOD”) that could result in damage to aircraft valued in the billions of dollars and hazard to life and limb. Id.; see also McQuiston, Tr. 21 at 69:17-71:5.

4. Discussion

The JV contends that both AMEC and the Air Force were “predisposed” to reject the remediation plan. Upon the discovery of the consolidation problem, the Air Force consistently expressed its intent to reject any proposed repair of Lane 5. The Air Force indicated repeatedly to AMEC that it would not accept a repaired runway, regardless of the cost involved and whether the repaired concrete was otherwise adequate for its intended purpose.²⁸ During a September 12, 2006 teleconference, the Air Force further informed AMEC that “the Air Force did not want any risk associated with a repair of Lane 5 and would require an extended warranty for the repaired concrete for the expected life of the concrete runway from AMEC if repairs were performed.” P-304. The JV argues that, during the period in which AMEC reviewed and analyzed WJE’s finding and remediation plan, AMEC never requested a meeting with the JV and/or WJE to discuss the issue, never sought additional information from the JV or WJE, and never inquired as to the ability of the JV to perform additional testing or respond to AMEC’s concerns. AMEC also rejected the JV’s requests to meet with AMEC and the Air Force in person to discuss the remediation proposal, and instead postponed the meeting until *after* AMEC and the Air Force had already rejected the proposal. P-302.

Both at trial and in their findings of fact and conclusions of law, the parties continue to dispute, at great length, the necessity and proper execution of various forms of testing, the lack of which AMEC used to justify its rejection of the JV’s repair proposal. Specifically, AMEC claims to have based its rejection of the proposal on the fact that “no flexural beam testing, split-tensile testing, or any other flexural or bond strength testing was performed.” The JV contends,

²⁸ For example, on July 7, 2006, Louis Torres of the Air Force informed AMEC that—regardless of any remediation proposal—the Air Force “will [accept] nothing other than complete removal and replacement.” P-285. On August 16, 2006, Mr. McQuiston stated: “I believe the approach [the Air Force] would like us to take is to tell [the JV] we reject the Lane 5 concrete so they can wash their hands of it.” P-304.

however, that the JV submitted significant data and test results regarding durability and flexural strength, and, to the extent it did not, AMEC did not suggest further testing before rejecting the JV's proposal.

Bond Strength. Bond strength is the ability of one concrete material to adhere to another concrete material. As it relates to Lane 5, therefore, one concern in analyzing the JV's proposal is whether or not the injected grout will adequately bond or adhere to the existing original concrete. R. LaFraugh, Tr. 14 at 38:1-39:5. Although there are various tests in the industry to measure bond strength, none were done for purposes of the JV's Final Proposal. R. LaFraugh, Tr. 14 at 39:3-12.

Tensile Strength. Tensile strength is the ability of the concrete to withstand being split apart and is important for the purpose of transferring load from one lane of concrete to the adjacent lane through the dowels. Carrasquillo, Tr. 22, 156:2-23. Tensile strength can be measured by use of a split-cylinder test or a flexural beam test. Carrasquillo, Tr. 22 at 160:13-161:8. AMEC argues that the proposal was inadequate because no tensile strength testing was done for purposes of the JV's Final Proposal. See D-447 at JV00059897-00059901 (describing various ways the concrete was tested with no mention of tensile strength testing).

Flexural Strength. The demand for flexural strength testing was consistent with Specification § 3300-2.01(B), "Concrete Proportions," which required flexural beam strength testing to be performed as part of the QA/QC for the Project. P-6. Mr. LaFraugh explained that the specified strength on the Project, ". . . was given in terms of a flexural strength measured by a test beam A standard flexural test is done on the beam, and for this project that requirement was . . . that those results of the test of the beam needed to show that . . . the Joint Venture could produce a flexural strength in the pavement of over 650 psi achieved in 90 days." R. LaFraugh,

Tr. 13 at 113:25–114:9. On the Project, flexural beam testing continued throughout the entire project in addition to a calculated flexural strength based on compressive strength. R. LaFraugh, Tr. 14 at 41:15–25. Flexural beam testing using cut beams is an accepted industry practice that is part of the Uniform Facilities Guidelines. R. LaFraugh, Tr. 14 at 50:9–22; Carrasquillo, Tr. 22 at 161:12–162:13.

Although Mr. LaFraugh’s original test plan included the use of cut beams and cores to test flexural strength, compressive strength, and to perform split-cylinder tensile tests (R. LaFraugh, Tr. 14 at 48:16–50:8), the Joint Venture did not provide flexural beam testing data as part of its submitted remediation proposal for Lane 5. Instead, the Joint Venture relied upon a calculation of flexural strength based on compressive strength tests, which AMEC argues is inadequate to demonstrate flexural strength. See D-447 at JV00059901.

Mr. Kondziolka testified at trial that he and the other AMEC experts, including Mr. Okamoto and Mr. Wylie, all thought it necessary to get either flexural or split-tensile testing done in order to properly evaluate any repair that was proposed. Kondziolka, Tr. 20 at 114:6–19. The JV, however, presented evidence at trial that AMEC’s own engineers and outside concrete expert apparently conceded that additional flexural testing was unnecessary. In early August 2006, Mr. Okamoto, along with two AMEC engineers, authored a memorandum for the Lane 5 repair setting forth acceptance criteria requiring “strength of at least 650 psi flexure *when converted from compressive strength to flexure strength.*” P-289 (emphasis added). The JV contends that its testing methodologies and test results effectively met—or exceeded—the requirements set forth by this memorandum. See R. LaFraugh, Tr. 13 at 120:15-124:21. The JV points out that no mention was made in this memorandum of using sawn beams or cores for flexural or split tensile testing, which instead specified using compressive strength to determine

flexural strength. P-289. AMEC nonetheless argued at trial that WJE's strength testing was insufficient due to its failure to perform beam testing to determine tensile or flexural strength (instead of using compressive strength).

Nippo had originally proposed beam testing prior to remediation testing, but WJE elected not to perform such testing, which it determined to be impractical, unreliable, and unnecessary. R. LaFraugh, Tr. 13 at 127:2-130:11. Beam testing is usually performed via the placement of concrete in steel molds that allow the contractor to make a concrete beam or cylinder for testing. Id. at 126:8-11, 129:11-18; see also Carrasquillo, Tr. 22 at 202:18-203:9. This is in fact the method required by the Specifications for measuring strength during placement. P-6 at 03300-2. The use of molds, however, is not feasible for testing remediated concrete that is already placed. Instead, the beams would have had to be saw-cut out of the Lane 5 concrete, which is problematic in several respects. See R. LaFraugh, Tr. 13 at 127:7-132:1-19.

The JV argues that testing sawed beams from the remediated concrete would be unreliable since—because the blade of the saw extends a half-inch from the joint—the center of the beam would be several inches from the joint and the beam would not include most of the honeycombed/grouted portions. R. LaFraugh, Tr. 13 at 127:7-25. Additionally, the stress of sawing the beam creates “micro-cracks” that might render the test results unreliable. Id. at 127:22-128:6. Further, without the benefit of a mold, the saw-cut beam would need to be perfectly even and parallel in order to yield a reliable testing, which would be difficult to achieve. Id. at 132:15-19; see also Carrasquillo, Tr. 22 at 202:21-203:4; P-298 at 10 (“Beam flexural strength tests typically exhibit wide variation, even when the beams are molded using molds with adequate wall stiffness. This variability is due, in part, to the sensitivity of the test to smooth, even parallel faces of the beams. In our view, flexural testing of cut beams is totally

impractical.”). The JV presented evidence at trial that the concrete industry has questioned the reliability of beam tests, and various agencies no longer perform beam tests as a measure of flexural strength. R. LaFraugh, Tr. 13 at 126:5-14; 128:10-129:22, 131:11-20.

The JV also argues that split-tensile testing would be similarly unreliable and impractical for measuring the flexural strength of the remediated concrete. Id. at 132:20-134:21; see also P-298 at 10 (“Thus, splitting tensile tests were not performed to estimate the flexural strength of the existing or grouted concrete because of this poor reliability.”). Furthermore, the JV claims that using sawn beams or cores for flexural or split-tensile testing is unnecessary in light of the accepted industry practice of using compressive strength to determine flexural strength. R. LaFraugh, Tr. 13 at 131:6-25.

Compressive Strength. An accepted mathematical correlation exists between compressive strength and flexural strength, whereby the compressive strength is used to also measure the flexural strength of concrete. R. LaFraugh, Tr. 13 at 115:2-19. This relationship is accepted by the concrete industry and is one recommended means of establishing flexural strength. Id. To develop a correlation between compressive and flexural strength of concrete, concrete cylinders and concrete beams are formed from the same concrete material; the cylinders are then tested for compressive strength and the beams for flexural strength. Repeated testing allows an engineer to develop a correlation between the two strengths. Later, this correlation can be used to estimate flexural strength of the same concrete material where only compressive strength data is available. R. LaFraugh, Tr. 14 at 40:6–41:14. Accordingly, the JV argues, “restoring the compressive strength of the honeycombed concrete to that of sound concrete effectively restores the flexural strength of the honeycombed concrete to that of sound concrete.” P-298 at 10.

AMEC contends, however, that for purposes of calculating flexural strength in the Joint Venture's Final Proposal, Mr. LaFraugh erred by using the correlation which had been developed on the Project by comparing cylinder and beam testing on the original healthy concrete. R. LaFraugh, Tr. 14 at 43:2–10. He then applied that correlation to the repaired, grouted material. Id. This is apparently *not* an accepted practice in the industry. R. LaFraugh, Tr. 14 at 43:18–23; Carrasquillo, Tr. 22 at 163:13–164:8.

AMEC explains that Mr. LaFraugh's use of the correlation was improper for two reasons. First, the grout-repaired concrete was not the same material that was used on the Project to develop the original correlation. Specifically, the grout used in the Joint Venture's repair technique did not contain any aggregates (sand or stone). R. LaFraugh, Tr. 14 at 44:7–47:10; Carrasquillo, Tr. 22 at 164:3-8. In addition, the grout used a different cement than the original concrete mix, had a different viscosity because of the addition of chemical admixtures, and had a different water/cement ratio. Id. Second, the correlation is only intended to be used to calculate an estimated flexural strength based on formed cylinders, and not intended to be used to calculate an estimated flexural strength based on drilled cores. Carrasquillo, Tr. 22 at 164:10–167:5.

Load Transfer. Load transfer describes the transfer of the energy of a plane landing on one lane of concrete (e.g., Lane 5) into the adjoining lane of concrete (e.g., Lane 4) through a series of dowels that connect the two lanes thereby softening the blow of the landing aircraft. R. LaFraugh, Tr. 14 at 9:16–10:16. Load transfer is an important aspect of pavement design. Id. As such, load transfer testing and analysis is a necessary part of a long-term durability analysis. R. LaFraugh, Tr. 14 at 10:22–25. Mr. LaFraugh acknowledged that there could be a concern about load transfer, but explained that this generally became an issue only if the sub-base failed. R. LaFraugh, Tr. 13 at 89:15-22. According to Mr. LaFraugh, the ability of a joint to adequately

transfer load can be tested using one of two primary methods. The first is to perform a “Finite Material Test,” which involves computer modeling of the materials and conditions being evaluated. The second involves physical testing by installing monitoring equipment into the slabs being evaluated, and then running heavy loads over those slabs and analyzing the data produced. R. LaFraugh, Tr. 14 at 11:1–19. The Joint Venture did not perform any testing for load transfer capability as part of their Final Proposal to AMEC and the Air Force. R. LaFraugh, Tr. 14 at 11:1–12:2.

5. Conclusion

The Court need not determine, however, whether any of these particular types of additional testing were necessary, as AMEC claims, or whether AMEC’s “concerns” were valid, because the Court finds that the testing that *was* done by the JV was inadequate to meet its burden of proving that the proposed repair would have been suitable for its intended use. Granite Constr., 962 F.2d at 1008. Although the Court found Mr. LaFraugh to be both a highly credible and extremely knowledgeable witness, and does not in any way question Mr. LaFraugh’s experience or expertise, it was revealed at trial that, with regard to the final Lane 5 proposal, the Joint Venture’s position and WJE’s report were based on extremely limited data.

Specifically, the entirety of the strength testing conducted by the Joint Venture in arriving at the Final Proposal was performed on only two 6-inch cores taken from joints. D-447 at JV00059897-59901. As Mr. LaFraugh conceded, by choosing to test on 6-inch cores instead of 4-inch cores (as AMEC had requested), the testing was performed on mostly “healthy” (rather than repaired) concrete. Because the honeycombing only existed on 2 inches of the joint, only one-third of a 6-inch core (at most) contained repaired concrete. The remaining 4 inches of the

core tested was original concrete. By contrast, had a 4-inch core been used, a full half of the core tested would have been the repaired concrete. R. LaFraugh, Tr. 14 at 20:23–21:6; 22:6–23:1.

At trial, Mr. LaFraugh explained that he had planned to perform the density and compressive strength testing on four cores along the Lane 4/5 joint. R. LaFraugh, Tr. 14 at 31:6–12. However, the results of only two core tests were reported by in the Final Proposal. Id. at 31:16–20. Two other cores were, in fact, taken for purposes of testing. According to Mr. LaFraugh, one core yielded results (low compressive strength) and was not reported. Mr. LaFraugh explained that this core was determined to have been defective in some manner. R. LaFraugh, Tr. 13 at 105:13–106:21; Tr. 14 at 26:17–31:5. The testing team’s August 29, 2006 e-mail to AMEC, however, did not mention any defect in the low-strength core. R. LaFraugh, Tr. 14 at 32:2–33:25; D-435. The fourth core was apparently misplaced, and was never tested. R. LaFraugh, Tr. 14 at 29:18-30:4.

In an August 29, 2006 internal e-mail, Mr. Fraczek, who worked closely with Mr. LaFraugh on the Final Proposal, expressed concerns that Paul Okamoto, one of AMEC’s concrete experts, “will find out that our analysis is not statistically valid.” D-435 at JV00038721.

Additionally, Mr. LaFraugh’s visual examination of the test repair section was limited to one part of a three-foot-long section that was taken from repaired a section and divided into three for distribution among AMEC, the JV, and Mr. LaFraugh. R. LaFraugh, Tr. 13 at 102:14–103:6. It was based on this visual review of his portion of the “slabettes” from the three-foot test section that Mr. LaFraugh determined that “virtually all of the voids were filled.” Id. at 103:11–17.

As discussed above, the test for waste under federal common law is whether the “cost of correction is economically wasteful and the work is otherwise adequate for its intended purpose.”

Granite Constr., 962 F.2d at 1007; see also M.A. DeAtley Constr., Inc. v. United States, 75 Fed. Cl. 575, 582 (2007) (“[I]n order for Plaintiff to recover under a theory of economic waste, the Court must determine whether the aggregate ‘substantially complied with the specifications,’ the work performed was otherwise adequate for its intended purpose, and the cost of correction was economically wasteful.”) (citation and internal quotations omitted). Similarly, in most states, the question is whether the cost of the repairs is disproportionate to the value obtained by the repair. See Robinson, If Wishes Were Horses, at 31. The contractor also bears the burden of proving that the loss in value from the defect is less than the cost of repair. 6 Bruner & O’Connor Construction Law § 19:59. In view of the Air Force’s and AMEC’s legitimate concerns regarding the ability of repaired concrete to perform under heavy loads over the intended life of the runway, the JV faced a heavy burden in attempting to prove that the repaired concrete could perform as well as replaced concrete with a degree of certainty that could justify the reduction in cost. Here, the Court cannot conclude—in light of the evidence produced at trial regarding the very limited data underlying the JV’s test results—that the proposed repair was genuinely adequate for its intended purpose.

Accordingly, the Court holds that any delay or cost incurred by the JV in developing the Lane 5 remediation plan, and ultimately in removing and replacing Lane 5, is the responsibility of the JV.

F. Post-Completion Delay Claims

With regard to the completion of the PCC pavement, the JV claims that, throughout the course of the project, AMEC failed to define in a diligent and cooperative manner which pavement panels placed by the JV required corrective action. The JV presented evidence at trial showing that a significant cause of this failure stemmed from AMEC’s inability to complete and

update a control chart to track the acceptability of the pavement.

Early in the paving process, AMEC expressed its intent to draft a pavement progress chart that would communicate the approval status of each pavement section of each lane: “a draft pavement progress chart is being developed by AMEC so all parties could, on a daily basis, know the status of each pavement section of each lane.” P-495B at JV025238-25239. AMEC, however, never created this progress chart, in part because AMEC and the Air Force struggled to agree on the acceptance criteria. In November 2006, AMEC inspected the concrete and completed a “Comprehensive Repair Evaluation” noting areas requiring remediation. P-390; R. LaFraugh, Tr. 13 at 73:22-74:4. Nonetheless, since the appropriate acceptance criteria still remained uncertain, AMEC did not provide this document to the JV at that time. R. LaFraugh, Tr. 13 at 72:20-74:11.

The JV completed paving on January 8, 2007 (see P-570 at 9 (demonstrative)), but as of that date did not yet possess any document setting forth AMEC’s evaluation and repair requirements. As reflected in the January 11, 2007 meeting minutes: “Comprehensive PCCP Review was completed by AMEC and is in AFCEE’s hands. AMEC is awaiting direction from AFCEE CO.” P-358 at 2.

In a January 16, 2007 letter to AMEC, the JV expressed its frustration with not having AMEC’s evaluation of the pavement:

We know of no reason why this assessment is not provided. Joint Venture personnel have repeatedly observed AMEC and the Air Force performing inspections of the completed work. . . . The Joint Venture is aware of a Comprehensive Assessment of PCC Pavement carried out by AMEC and submitted to the Air Force. The Joint Venture is also aware of a Project Completion Plan prepared by AMEC for the Air Force. Neither of these documents have been supplied to the Joint Venture although previously requested but should have been. We can think of no reason why

such information should be kept secret from the entity required to perform the work.

P-389 at 1.

On January 17, 2007, AMEC provided the JV with a version of the Comprehensive Repair Evaluation. P-390. The parties do not dispute, however, that since this document had not been updated since its November 2006 creation, it was out of date and inaccurate by January 2007. During a joint meeting on January 18 and 19, 2007, AMEC and the JV both agreed to discard it and start anew:

AMEC agreed that the sheets in the evaluation distributed yesterday are old and outdated. It contains errors and is incomplete. Most of the repairs appear already to have been completed. That evaluation is therefore to be discarded. Therefore, starting today, AMEC has redone 1,000 feet of runway. By early tomorrow, AMEC will complete another 1,000 feet and mark the runway with spray paint as they go. AMEC will also document the situation with new spreadsheets.

P-391 at 3; see also P-393; R. LaFraugh, Tr. 13 at 74:12-75:5.

On January 22, 2007, AMEC provided the JV with “the latest draft of the surface defects spreadsheet,” for a portion of the pavement. P-392. This evaluation did not yet cover the entire runway. P-392. AMEC finally provided the JV with its “Repair Work Comprehensive Investigation”—which set forth a complete evaluation of the pavement—on February 11, 2007, over a month after the JV had completed paving. P-396 at JV00266607.

The JV contends that the finish and repair work could not be completed until AMEC prepared and presented to the JV the pavement acceptance criteria and evaluation discussed above. The JV argues—and the Court agrees—that AMEC’s untimely preparation of a comprehensive repair evaluation plan for the PPC pavement actively hindered and delayed the JV’s repair and completion performance, and breached AMEC’s implied contractual duty of good faith and fair dealing.

This evidence was not rebutted by AMEC at trial, nor was this claim anywhere addressed in AMEC's Proposed Findings of Fact and Conclusions of Law. The JV attributes 46 days of "post-placement" delay to AMEC for the reasons discussed above, including "unreasonable and untimely rain damage concerns," "defective spall repair directions," and "unreasonable administration of pavement acceptance." JV's FOF/COL ¶¶ 476-79. As to the last of these reasons *only*, the Court finds that AMEC was indeed responsible for critical path delay, of which it had ample constructive notice, and for which the JV is entitled to an extension and recovery of its time-related delay damages.²⁹

G. Additional PCCP Claims & Issues

The JV claims delay damages and costs related to a number of additional issues, including (1) allegedly improper interference by and concerns of the Air Force regarding certain paving test strips, and untimely delay by AMEC in inspecting and approving test strips; (2) rain delay days that the JV contends it would not have incurred had AMEC not delayed paving; (3) AMEC's allegedly improper Stop Work Order directing the JV to cease all paving due to the JV's failure to fully cover pavement during a rain event; (4) AMEC's allegedly improper Stop Work Order directing the JV to cease all paving due to the discovery of the honeycombing along the Lane 4/5 joint; (5) AMEC's allegedly improper withholding of progress payments from the JV due to AMEC's "rain damage" concerns related to Lane 35 (which later proved unfounded) and Lane 5 voids; (6) unnecessary inspection and/or criticism of paving by Army Corps of Engineers personnel; (7) suspension of paving at AMEC's direction due to Air Force Bomb exercises; and (8) fees paid to WJE and American Petrographic Services, Inc. ("APS") for consulting work performed in connection with allegedly rain damaged Lots, with the remediation

²⁹ However, as the JV has not broken down the 46 days attributed to "Acceptance Delays" (JV's FOF/COL ¶784) into subparts allocated to each type of acceptance or post-placement delay, the Court does not at this time determine the extent of the delay for which the JV can recover.

of Lane 5, and with the spall repair design issues.

Consistent with the findings and holdings related to the JV's PCCP claims above, the Court holds as follows:

- (a) With regard to the Air Force's interference and inspection delay, unnecessary inspection by the Army Corps of Engineers, and paving delay due to bomb exercises, the JV has not identified any provision of the Subcontract or legal principle that entitles the JV to recovery for these claims;
- (b) With regard to the two Stop Work Orders, evidence presented at trial showed that AMEC's directions were justified in light of the JV's failure to provide sufficient rain protective coverings, and in light of the deficiencies in Lane 5 concrete;
- (c) With regard to allegedly untimely approval of test strips by AMEC, the JV did not present evidence at trial sufficient to show that AMEC was untimely or that rejection was unjustified;
- (d) With regard to AMEC's withholding of progress payments, the JV is entitled to recover interest on progress payments withheld for Lot 35, but *not* for those withheld for Lane 5;
- (e) With regard to fees paid to WJE and APS, the JV is *not* entitled to recover its costs for consulting services provided in connection with the spall repair issues, as it was the JV's choice to conduct the testing and re-do the spall repairs, or with the remediation of Lane 5, which the JV undertook knowing that both AMEC and the Air Force were unlikely to agree to the repair; however,
- (f) The JV *is* entitled to recover its costs for consulting services provided in connection with both the assessment of alleged rain damage, and the acceptance and repair issues during close-out of the Project, which consulting costs were legitimately related to "contract

performance or administration,” pursuant to FAR 31.205-33 (“Professional and Consultant Service Costs”)—as incorporated into the Subcontract under FAR 252.243-7001 (“Pricing of Contract Modifications”), and were necessitated by AMEC-caused issues.

V. THE JV’S CLAIM REGARDING LIQUIDATED DAMAGES

As it did at summary judgment, the JV asks the Court to find that AMEC improperly withheld \$837,500 in liquidated damages for delays associated with the North Runway project, arguing that the liquidated damages clause of the Subcontract is unenforceable.

Under Nevada law, whether a liquidated damages clause is enforceable is a matter of law for the Court to decide. Loomis v. Lange Fin. Corp., 865 P.2d 1161, 1163–64 (Nev. 1993). Such clauses are *prima facie* valid unless the challenging party demonstrates that the clause amounts to an unenforceable penalty. Id. at 1164 (citing Joseph F. Sanson Inv. v. 286 Ltd., 795 P.2d 493, 497 (Nev. 1990)). The challenging party can do so by presenting evidence that the liquidated damages amount is disproportionate to the actual damages sustained by the enforcing party. Id.

AMEC’s prime contract with the Air Force included Task Order 0013, a cost-plus-fixed-fee contract for repair of the North Runway at Andersen. Though Task Order 0013 did not include a liquidated damages clause related to Runway Project delays, the prime contract also did not guarantee payment for costs resulting from extended or late performance, incorporating instead a provision of the Federal Acquisition Regulation (“FAR”) which provided that payment would be made in amounts determined to be allowable by the contracting officer based on a range of factors, including reasonableness. The Air Force extended the initial September 30, 2006 completion deadline applicable to the prime contract for the North Runway Project to

August 31, 2007.

After entering into the prime contract, AMEC entered into the fixed-price Subcontract with the Joint Venture. The Subcontract included a clause providing that the Joint Venture shall pay AMEC—as liquidated damages and not as a penalty—\$2,500 per day for each day that the Joint Venture’s work on the Project exceeded the deadline under the Subcontract. AMEC first extended the initial April 26, 2006 Subcontract completion deadline to June 29, 2006, and then to July 10, 2006. AMEC ultimately accepted the Joint Venture’s work on May 31, 2007, and withheld payment totaling \$837,500 in liquidated damages for 335 days the project completion was overdue.

The Joint Venture argues that, because the prime contract between the Air Force and AMEC provided for full reimbursement of AMEC’s actual costs and did not itself contain a liquidated damages clause, AMEC did not incur any damages from the Joint Venture’s delay, thus rendering the liquidated damages clause unenforceable as disproportionate to actual damages.

In its September 21, 2011 Opinion and Order, the Court denied the JV’s motion for summary judgment, holding that AMEC had presented evidence that the liquidated damages amount of \$2,500 per day was based on a good faith estimate of the costs AMEC would incur to perform oversight and management of the project for each day beyond the completion deadline in the Subcontract; that it did, in fact, incur delay costs in excess of that liquidated amount; and that it passed on to the Air Force only those delay costs in excess of the liquidated damages amount. The Court also noted that the Joint Venture had presented no authority to support its contentions that subcontract liquidated damages clauses are enforceable only where there is a comparable clause in the prime contract, and had presented no evidence that the Subcontract’s

liquidated damages clause was contingent on the imposition of liquidated damages on AMEC by the Air Force or on the Air Force's denial of pass-through delay costs sought by AMEC. Consequently, the Court held that the JV had not established as a matter of law that the liquidated damages clause was an unenforceable penalty.

The Court sees no reason to disturb that holding here, as the JV again failed to present evidence at trial sufficient to show that AMEC did not incur delay costs of at least approximately \$2,500 per day. The liquidated damages clause is therefore enforceable, but only to the extent that the delay is *not* attributable to AMEC. Where the JV has shown, pursuant to the Court's holdings above, that AMEC is liable for critical path delay, AMEC is not entitled to withhold liquidated damages for those portions of the total delay.

Moreover, the JV has correctly pointed out that AMEC extended the date of Subcontract completion to July 10, 2006 under Modification 5 (P-30), but erroneously began to assess liquidated damages against the JV as of July 1, 2006. The JV is entitled to recover the liquidated damages withheld for those 10 days.

Finally, the Court holds that AMEC was not entitled to withhold liquidated damages after the date of substantial completion, on March 30, 2007. Under federal law, liquidated damages shall not be assessed after the date of substantial completion. See, e.g., Fortec Constructors v. United States, 8 Cl. Ct. 490, 509 (1985).

Substantial completion is generally understood to take place where the work is suitable for its intended purpose. See, e.g., Interstate Gen. Gov't Contractors, Inc. v. United States, 40 Fed. Cl. 585, 607-608 (1998) (default termination set aside because the system was functioning and "the only items left to perform were punch-list items and debugging"); Brooks Towers Corp. v. Hunkin-Conkey Constr. Co., 454 F.2d 1203, 1205 (10th Cir. 1972) (substantial completion

was defined as meaning “when the work is ready for occupancy for its intended purposes, except for customization for tenants and ‘punch list’ items to be completed by Contractor”); Cont’l Ill. Nat. Bank & Trust Co. v. United States, 101 F. Supp. 755, 758 (Ct. Cl. 1952) (minor punch list items did not prevent substantial completion). The JV substantially completed the Project on March 22, 2007, at which point only punch-list items remained. P-76, P-78.

On March 28, 2007, AMEC informed the Air Force that the following work was completed and had been accepted:

It is AMEC’s understanding that all concrete, asphalt, taxiways, paint markings, shoulders and landscaping has been inspected and are acceptable to the Air Force on the [North Runway] project with the exception of some grass areas that have not filled in.

P-52 at 1.

AMEC’s Contract Manager conceded internally that AMEC should cease imposing liquidated damages as of March 30, 2007, but sought to delay the date of substantial completion in order to delay commencement of the warranty period: “*As it is common to end LDs upon substantial completion*, I think we could consider ceasing the assessment of LDs as a gesture, but on the condition that the warranty period won’t [yet] occur. . . .” P-79 (emphasis added). AMEC nonetheless continued to impose liquidated damages against the JV and did not cease until the Air Force accepted the entire Project on May 31, 2007. P-83

Accordingly, the JV is entitled to recover the 62 days of liquidated damages withheld from March 31, 2007 through May 31, 2007.

VI. THE JV’S CLAIM FOR UNPAID CHANGE ORDERS

Over the course of the Project, the JV submitted numerous Change Order Requests (“CORs”) for work performed that was beyond the scope of the original Subcontract

specifications and Addenda, or later Modifications. The JV now seeks payment for a number of CORs that were approved by AMEC, but simply remain unpaid (“Undisputed Change Orders”); for several CORs as to which AMEC agrees the JV is entitled to some extra compensation, but disputes the *amount* of that compensation (“Quantum-Disputed Change Orders”); and for several CORs as to which AMEC disputes that the JV is entitled to *any* additional compensation (“Fully Disputed Change Orders”).

A. Undisputed Change Orders

AMEC fully approved several CORs during the Project that, despite approval, were never executed. P-494. At summary judgment, the Court ruled that the JV was entitled to the sum of the following CORs (\$246,066.46), plus prejudgment interest:

- **COR 11:** \$1,418.38 for AMEC’s portion of the costs of installing electrical supply to the Project’s material testing labs;
- **COR 19:** \$206,499.00 for the cost of importing 12,147 tons of base course material not provided for in the original contract;
- **COR 27:** \$11,127.69 for costs associated with AMEC’s change in runway light canister design;³⁰
- **COR 28:** \$6,733.18 for costs to install additional wire conductors for Precision Approach Path Indicators and Runway End Identification Light fixtures;
- **COR 29:** \$9,064.81 for costs to relocate lines in an existing duct bank to a lower conduit along the runway;
- **COR 32:** \$4,000.00 for costs to replace taxiway edge striping;
- **COR 33:** \$3,023.33 for costs to modify the grading of an asphalt shoulder and to add an access road;
- **COR 41:** \$1,123.71 for costs to fill a sinkhole; and
- **COR 46:** \$3,076.36 for costs associated with repairing the joint sealant on the runway after it was damaged by another subcontractor.

³⁰ AMEC partially disputed COR 27, asserting it was not responsible for the costs of insurance associated with the extra work, but the Joint Venture has conceded the disputed amount (\$663) to AMEC.

Accordingly, judgment will be entered in favor of the JV as to these change orders, in the amount of \$246,066.46, plus prejudgment interest.

B. Quantum-Disputed Change Orders

a. COR 8: No. 6 v. No. 8 5KV Copper Wire

The JV seeks \$44,384.00 under COR 8 for the purchase of No. 6-5kV copper wire rather than No. 8-5kV copper wire. Per its letter of July 13, 2007, AMEC contends that the JV is only entitled to \$24,893.99. D-975 at 3.

The JV did not receive the conformed set of construction plans from AMEC until after AMEC had agreed to the JV's Best and Final Offer (the "BAFO"). In these drawings, No. 6-5kV wire was to be placed along the runway; this was a change from both the Request for Proposal and the BAFO plans, which required No. 8-5kV wire. Street, Tr. 3 at 10:6-13. The JV pointed out this difference to AMEC, and, in a meeting on August 31, 2005, Philip McQuiston of AMEC agreed to pay the price difference between the No. 8 and No. 6 wire. McQuiston, Tr. 21 at 84:2-85:15.

The JV purchased the No. 6 wire in three separate transactions, in May 2005, August 2005, and September 2005. P-430 at AMEC0104143. The cost for the wire increased with each purchase due to market fluctuations for copper. *Id.* The JV submitted its costs for the three transactions on December 4, 2005 (P-430); however, AMEC refused to fully reimburse the JV for its costs, claiming that the JV should have purchased all of the wire in May 2005 and that AMEC was thus entitled to the lower unit price paid in the first transaction for all the transactions. Street, Tr. 3 at 17:16-23. Stated AMEC, in rejecting the JV's change order in part:

IBC/Nippo calculated the cost difference in the wire using a price in May for the #8 wire for the credit and using a price in May, August, and September for the cost of the #6 wire. AMEC has no responsibility for IBC/Nippo's choice of purchasing the wire in

three installments or the timing of the copper price increases which escalated 64% during this time period according to the documentation submitted.

D-975 at 3. AMEC therefore expressed that it was only willing to pay \$24,893.99. Id.

AMEC contends that the JV improperly exaggerated the increased cost of the wires by basing its calculations on the lowest price for No. 8 wire, and the highest price (of the three purchases in May, August, and September 2005) for No. 6 wire. P-430; Street, Tr. 3 at 11:12-12:8. AMEC has calculated the cost difference for the purchase of the No. 8 KV wire based on the cost difference presented between the copper wire sizes at the time of the Joint Venture's initial purchase, plus the markups requested. McQuiston, Tr. 21 at 83:16-85:19.

The JV argues that AMEC's position is improper because, had AMEC correctly identified the project requirements at the outset, the more expensive No. 6 wire would have been in the BAFO plans, and this issue would have been averted. The JV also argues that the total quantity of wire could not have been ordered in May because the Specifications were unclear as to the amount of electrical wire needed. Street, Tr. 3 at 15:12-18:10.

In response to AMEC's March 2005 request regarding expected total cost savings to Line Item No. 5 "assuming that manholes and handholes, *and associated conduits and circuits*, do not need to be moved and would only require grade adjustment if applicable" (P-429 (emphasis added)), the JV based its total cost bid for Line Item 5—and its initial purchase of copper wire—on the understanding that it need not replace existing wire in the "conduits and circuits" associated with the manholes and handholes that would not be relocated. P-429 ("The [JV's] total [BAFO] cost for item No. 5 . . . includes the necessary adjustment to the existing manholes and handholes up to 12" to match the new finish grade."); see also Street, Tr. 3 at 15:12-18:10. When it later became clear that certain AMEC field personnel expected the JV to replace existing wire, the JV asked for clarification of this issue in RFI No. 12, dated July 18, 2005. P-

429. In response, AMEC stated that:

Line Item 5 in the discussion phase pertained to the relocation of the manholes, conduits and circuits within those manholes, which . . . [are] now to remain in their current location. Line Item 5 did not address cables and wires to be replaced by the electrical drawings as indicated to complete the scope of work.

IBC is correct that circuits that are not affected by this project do not need to be replaced and can remain as they are. In addition conduits can be reused Cables and wires affected by this work shall be replaced as indicated on the following drawings and contract documents and were not referenced in the Item 5 discussion or affected by it[.]

P-429.

The Court finds AMEC's response both ambiguous and evasive. AMEC presented no evidence at trial to counter the JV's reasonable assumption that the word "circuits" in the pre-bid discussion of Line Item 5 included wires, which would not need to be relocated or replaced.³¹ The JV is thus entitled to recover the full amount requested under this COR, \$44,384, plus prejudgment interest.

b. COR 30: Relocate Taxiway E Edge Lights – AMEC

The JV seeks \$15,740.10 under COR for work associated with relocating taxiway lighting systems and constructing a temporary electrical bypass during the demolition of Taxiway E. AMEC contends that the JV is entitled to only \$3,803.43 of this COR, which is the cost of additional work related to the permanent relocation of an edge light at Sta. 3+12, which AMEC agrees was outside the scope of the Subcontract. D-975 at 4.

The JV does not dispute that it always had a contractual obligation to maintain the taxiway lighting system in an operable condition during runway construction; however, the JV

³¹ The American Heritage Science Dictionary (Houghton Mifflin 2002) defines "circuit" as "[a] closed path through which an electric current flows or may flow," or "[a] system of electrically connected parts or devices." The Court is not aware how, under the circumstances described above, such a closed path or electrical connection might be accomplished *without* wires or cables.

contends that it incurred extra unnecessary work associated with this obligation because AMEC did not send the JV revised electrical drawings in a timely fashion. P-460; P-463. The JV argues that, had AMEC completed the revised electrical design before the JV began the demolition of Taxiway E, some of the temporary work could have been incorporated into the permanent work, saving both time and money. P-463. The JV has not, however, identified any provision in the Subcontract or legal principle under which it is entitled to recover for efforts required under the original scope of work.

Accordingly, the JV is entitled to recover only \$3,803.43 under COR 30. As this amount remains unpaid, the JV is also entitled to prejudgment interest on this amount.

c. COR 39: Burlap Drag Grinding

The JV seeks \$22,871.10 under COR 39, for grinding and resurfacing panels on Lanes 1 and 10. The Subcontract specifications set forth that, during paving, the JV was to use machine broom texturing for finishing the concrete. P-6 at § 03300-34. During the placement of some panels on Lanes 1 and 10 in early 2006, the Air Force experimented with using dragged burlap bags for finishing. AMEC therefore directed the JV to use burlap drag for texturing the surface. Street, Tr. 3 at 21:21-23:17. Ultimately, the Air Force and AMEC decided that they did not like the burlap drag finish and AMEC directed the JV to use the bump grinding machine to resurface the burlap-drag-finished concrete. Id. The JV did the work in early 2007 and provided AMEC with its costs for 91.5 total hours of grinding via change order request in April 2007. P-489.

AMEC rejected the JV's lump sum request of \$22,871.10 based on its contention that the Government had requested experimental burlap drag finishing only on Lot 1. D-717 at 5 ("Earlier this week we received verbal direction from 36th CES, through AMEC, to stop using the mechanized broom for texturing and substitute a burlap drag. We did that at Lot 1 paving.") Therefore the JV was entitled to recover \$8,748.51 for its remedial bump grinding work on Lot 1

only, which AMEC calculated based on the JV's rates for equipment and labor, and AMEC's records indicating that Lot 1 required 35 hours of grinding. McQuiston, Tr. 21 at 95:4-96:21. AMEC contends that the remainder of the bump grinding work was performed to remediate burlap drag finishing that the JV itself chose to do in an early effort to correct surface tears in placed concrete and achieve an acceptable texture. D-717 at 1, 5.

The JV presented no evidence suggesting that AMEC or the Air Force ordered experimental burlap drag finishing beyond Lot 1, or any evidence suggesting that AMEC's calculation of work associated with Lot 1 was inaccurate. Accordingly, the JV is entitled to recover only \$8,748.51 under COR 39. As this amount remains unpaid, the JV is also entitled to prejudgment interest on this amount.

d. CORs 4 & 42: Repair and Replace Electrical Parts & Lighting

The Joint Venture sought \$15,368.33 under CORs 4 and 42 for the repair and replacement of electrical fixtures, which was extra work directed by AMEC and not included within the scope of the Subcontract. AMEC concedes that the JV is entitled to \$12,000 under these change orders. Since the remaining difference—amounting to barely \$3,300—was too small to warrant ongoing litigation on this issue, the JV has agreed to relinquish its claim to any additional amounts under these changes. Accordingly, it is undisputed that the JV is entitled to judgment in the amount of \$12,000.00 (plus prejudgment interest) under CORs 4 and 42.

C. Fully Disputed Change Orders

a. COR 1: U.S. Flag Vessel Cost

The Joint Venture seeks to recover \$228,210.27, the remainder of the amount provided under Modification No. 1 for cement shipped to Guam by U.S. Flag Vessel.

Pursuant to Defense Federal Acquisition Regulation Supplement (DFARS) Clause 252.247-7023, which is included in the Subcontract, the Joint Venture was required to use U.S.

Flag vessels when transporting any supplies for use on the Project by sea. McQuiston, Tr. 19 at 100:9-13; C. LaFraugh, Tr. 17 at 32:21-33:5. After seeking but failing to obtain a waiver of this requirement from the Air Force, AMEC and the Joint Venture executed bilateral Modification No. 1 to the Subcontract on June 17, 2005. P-26. Based on the quoted price provided by Robert Toelkes of IBC for the importation of 33,699 tons of cement and added \$1,887,777.00 to the Subcontract price to permit the Joint Venture to comply with the DFARS clause of the Subcontract. Id.

Modification No. 1 provided specifically for payment of the additional transportation funding upon delivery of the materials to the Project in Guam. A line item was added to the Subcontract Schedule of Values “and billed as a percentage of the firm fixed price amount. Partial payment will be made in accordance with the Subcontract Agreement when delivery of a shipment to Guam is . . . complete.” Id. Modification No. 1 also includes an extension to the Subcontract completion date to June 29, 2006. The schedule change accounted for all delays and schedule adjustments that had occurred up to and including the date of execution of the Modification. Id. Finally, Modification No. 1 contained the following release language: “This modification is considered a complete equitable adjustment in cost and schedule for the services described and no further modification shall be required for these services based on these conditions.” Id.; Robertson, Tr. 10 at 36:2-8.

As a result of the delay caused by the loss of the second cement delivery at sea, the JV requested the Air Force’s approval to discontinue shipments by U.S. Flag Vessel and instead, to obtain cement from a local supplier. Robertson, Tr. 10 at 21:3-13.

By letter dated March 31, 2006, AMEC approved the JV’s request to obtain the remaining cement needed for the Project from the local supplier. AMEC informed the JV that it

would accept the invoiced amount of \$1,053,220.00 for deliveries to date as the full and final amount due and owing to the JV for the deliveries by U.S. Flag vessel under Modification No. 1, as follows:

Subject to compliance with its subcontract terms, IBC/Nippo may choose to continue with delivery of cement utilizing US Flag Vessels for additional payment of Modification 1 or proceed with purchase locally and accept the payment issued to date as final payment for Modification 1. Please notify AMEC as soon as possible how you intend to proceed so that we can address the subcontract terms accordingly and apply the funds from Modification 1 to other project components which could possibly include asphalt pavement.

D-172; Robertson, Tr. 10 at 27:22-29:15.

By letter dated April 4, 2006, the Joint Venture responded that it understood AMEC's position that the sum of \$1,887,777 payable under Modification 1 would be reduced to reflect the actual amount of cement delivered by U.S. Flag vessel. The Joint Venture also stated that it understood AMEC's position that "the IBC-Nippo Joint Venture is not entitled to any additional money for the imported cement even if our costs of importation are greater than those presented at the time Modification No. 1 was under discussion." D-178.

In internal correspondence, the JV recognized that there was little basis for any claim for further payment under COR 1:

. . . [T]he two key letters on the subject are attached and are not helpful to such a position. IBC provided a cost breakdown based on unit prices. Incidentally, the breakdown leaves out a major portion of costs and especially the fixed price portion. Acceptance of the change to use of locally purchased cement is conditional on unit price applied to cement actually delivered to the job site.

D-737.

The JV concedes that IBC had proposed the costs for Modification No. 1 on a unit price

basis, which failed to account for the high fixed costs of importing cement by U.S. Flag vessel,³² and admits that it understood AMEC's conditions at the time it chose to begin procuring cement locally. Robertson, Tr. 10 at 35:20-24. The JV also concedes that it failed to provide AMEC with express notice of the JV's intent to seek additional costs under Modification 1 until two years after the work in question was performed. Id. at 32:15-33:3; 37:4-17; 41:1-9. However, the JV's April 4, 2006 letter suggests that the issue of reduction of payment under Modification 1 be postponed until it was determined what the final quantity of cement imported by US Flag vessel would be, and noted that "for the avoidance of doubt, it is our position that should a reduction be appropriate based on procurement of a portion of the cement locally, such adjustment should be made by equitable adjustment." D-178.

The JV now argues that it is entitled to an equitable adjustment of the amount withheld from Modification No. 1 because it incurred substantial fixed costs to ship a majority of the cement by US Flag vessel, and incurred *higher* overall costs for cement due to the JV's decision to use locally procured cement, which avoided significant Project delays.

Regardless of the JV's failure to realize cost savings by procuring cement locally, the Court holds that the JV is not entitled to any additional compensation for Change Order Request No. 1. AMEC is not responsible for Mr. Toelkes's error in quoting a price on a unit basis that failed to identify and separate fixed costs from variable unit costs; nor is AMEC responsible for the JV's decision to use local cement with full knowledge that AMEC did not intend to make further payments for that cement under Modification No. 1. Accordingly, judgment will be

³² The JV argues that it calculated the \$1,887,777.00 figure used for Modification 1 based on its estimate of the fixed amounts and variable costs needed to transport the cement to Guam from Asia via U.S. Flag vessel. Based on shipment of 33,699 tons of cement, this figure was estimated on a unit price basis; however, this unit price basis was dependent on the quantity of 33,699 tons of cement being shipped to the Project. If the amount of the shipment were less, the average unit price of the cement would rise significantly; the JV's estimate was dependent on cost savings that would occur only if the tonnage did not decrease. The JV admits, however, that the total figure was quoted to AMEC on a per unit basis.

entered in AMEC's favor as to COR 1.

b. COR 24: Regrade Subbase / Base Sta. 40+00 to 60+00

As discussed in detail above, see, supra, Part III.C, the base course conditions between Base Sta. 40+00 and 60+00 were a "differing site condition" within the meaning of the Subcontract, for which the Court has already held AMEC liable. (The Court recognizes that AMEC expressly assumed responsibility for paying the JV only for "the work associated with any concrete or select fill" to repair the sinkholes (P-112); however, in light of AMEC's direction to reuse existing base course, AMEC's earlier assessment of this area as having been suitably graded, tested, and prepared for paving (P-109 at 1), the subsequent development of the sinkhole, and AMEC's admission that the sinkholes were a differing site condition, the Court holds that AMEC's later direction to remove the prepared base course and perform any work associated with importing and installing new base course material between Sta. 40+00 and 60+00 is also AMEC's responsibility. Accordingly, judgment will be entered in favor of the JV as to COR 24 in the amount of \$73,408.32, plus prejudgment interest.

c. CORs 34 & 35: Relocate Arresting Gear Markers & PAPI Lights

The JV seeks \$35,280.37 under COR 34 for relocating arresting gear markers, and \$62,613.00 under COR 35 for relocating precision approach path indicator ("PAPI") lights, both of which tasks AMEC agrees were not included in the Subcontract.

In December 2006, AMEC issued a request for proposal for relocating arresting gear markers. P-465; P-563. The JV responded on February 6, 2007, providing a lump sum price to complete the work. P-465. Similarly, on February 8, 2007 the JV provided AMEC with a lump sum cost estimate for performing work associated with relocating PAPI lights. P-478 at 2. On February 12, 2007, AMEC rejected both proposed lump sum cost estimates and directed the JV to proceed with the work on a "Forced Account" basis. P-478 at 3. In both instances, however,

the JV failed to submit job sheets detailing its daily costs, as required under the Subcontract's Force Account provision. P-6 at § 00700-15.

The JV concedes that, for change order work, the Subcontract sets forth that the value of the performed work should be determined either by “mutual acceptance of a unit price or lump sum proposed order” or “on a Forced Account Basis.” P-6 at § 00700-15. Where work is performed on a Forced Account basis, the Subcontract requires that the JV provide AMEC with daily job sheets “detailing quantities of personnel, equipment, and material used on change order work.” Id. The job sheets were required to be provided “on each day change order work is performed.” Id. The JV admits that it provided no such daily job sheets to AMEC. The JV argues only that, due to the “lateness” of AMEC’s response—6 days and 4 days after the JV submitted proposed lump sums—and the fact that the Project was already in its final stages, the JV had already performed some of the work by the time it received AMEC’s directive to perform it on a Forced Account basis. JV’s FOF/COL at ¶¶ 686, 691, 697. Consequently, the JV argues, it was “impractical—if not impossible—for the JV to track its costs for this work.” Id. Due to the JV’s failure to track or submit its costs on a Forced Account basis, AMEC rejected the CORs in their entirety. The Court finds the JV’s argument unpersuasive, as the JV failed to even *attempt* to meet the Subcontract requirements for Forced Account work, to track any costs, or submit any daily job sheets for at least the portions of the work it acknowledges were performed after receiving AMEC’s directive. Consequently, judgment will be entered in AMEC’s favor as to CORs 34 and 35.

d. CORs 31 & 40: Additional Grading at 6L ACP End

The JV seeks \$41,005.04 under COR 40 (which includes COR 31). On December 10, 2006, AMEC requested a cost proposal from the JV to extend the grading and asphalt pavement at the western edge of the runway by an additional 20 feet, beyond the 20 feet provided for in the

Subcontract. P-479 (“Gentlemen : The western most shoulder of the North Runway project . . . requires additional milling, grading and asphalt work beyond the 20’ currently provided for in the specifications and drawings. Please . . . provide a cost estimate to mill an additional 20’ by 200’ of asphalt, grade to these given elevations while providing for a swale and resurface with 2” of asphalt . . .”). The JV supplied the requested cost proposal on December 17, 2006, seeking \$41,005.04 for the extra work to be performed. P-480. Despite requesting the cost proposal and acknowledging that the additional work was *not* covered by the Subcontract specifications, AMEC later rejected CORs 31 and 40, claiming that Bid Item No. 7 covered the installation of asphalt work at the runway shoulders, and that the JV was not entitled to compensation for grading work already paid under Bid Item No. 7. D-975 at 4. Bid Item No. 7 reads:

Install Runway Shoulders: Contractor shall prepare the area on both sides of the runway for the entire length of the runway shoulder. Material shall be excavated and base material and asphalt installed for a 10-ft shoulder as represented on the plans and specifications. The Contractor shall also grade a minimum of 10’ beyond the asphalt shoulder to meet the slope requirements specified and meet the existing grade.

P-6 at 01010-3; P-6 at 01025-3.

Judgment will be entered in favor of the JV for CORs 31 and 40 in the amount of \$41,005.05, plus prejudgment interest.

e. COR 45: QA Laboratory Support – JV

The JV seeks \$17,721.40 under COR 45 for its costs in providing two of its own personnel to assist AMEC’s Quality Assurance contractor, Smith-Emory, which was work outside the scope of the Subcontract and was performed at the request of AMEC. P-493. In the spring of 2006, AMEC’s senior construction manager, Patrick Elmer, requested that the JV provide a few of its laborers to help Smith-Emory set up its laboratory, along with other work as

needed, including Quality Assurance testing. P-493; see also Street, Tr. 3 at 29:5-31:2. The JV's costs for this change order are supported by the timesheets submitted by these laborers, which were approved and signed by Smith-Emory. P-493 at AMEC0104036–0104049.

AMEC does not dispute appear to dispute—and offered no evidence at trial disputing—that Mr. Elmer requested that the JV provide this labor and that this work was outside the scope of the Subcontract; AMEC contends only that the JV did not provide notice of this change order in accordance with the terms of the Subcontract, because the JV did not formally request a change order for this labor until contract close-out. However, as this Court held at summary judgment, “a contractee’s actual or constructive notice of the conditions underlying the claim excuses formal compliance when federal law is applied.” Perini Corp., 18 F. Supp. 2d at 293. Specifically, where the contracting officer directs work knowing the likely outcome, strict compliance with notice provisions is unnecessary. Calfon Constr., 18 Cl. Ct. at 438.

Accordingly, judgment will be entered in favor of the JV as to COR 45, in the requested amount of \$17,721.40, plus prejudgment interest.

f. CORs 23, 25, 26, 37, 38 & 47

As to Change Orders 23 (Termination of Grooving Subcontractor), 25 (Regrade subbase/Base Sta. 20+00 to 14+00), 26 (Relocate Taxiway E. Edge Lights), and 37 (Lower Manhole #13 at Sta. 55+00), the JV elected not to present evidence at trial supporting these change orders due to the nominal amounts in dispute, and does not dispute that the Court shall grant judgment in favor of AMEC with respect to these change orders. Accordingly, judgment will be entered in favor of AMEC as to CORs 23, 25, 26 and 37.

As to Change Orders 38 and 47 (Electrical Acceptance; Extra Electrical Work), the JV did not include these change orders under the claims set forth in the JV's Proposed Findings of Fact & Conclusions of Law. The Court therefore deems any claim as to these change orders

withdrawn.

VII. THE JV'S CLAIM FOR REA CONSULTING COSTS

The JV seeks to recover \$1,114,418.00 paid to Jacobs & Associates for consulting work performed from October 2006 through March 2008, in preparation of the JV's Request for Equitable Adjustment. JV's FOF/COL ¶¶ 729-749. The JV contends that it is entitled to recover such costs pursuant to FAR 31.205-33 ("Professional and Consultant Service Costs")—incorporated into the Subcontract by FAR 252.243-7001 ("Pricing of Contract Modifications")—which provides for recovery of legal and accounting costs identified with "contract performance or contract administration" (FAR 31.205-33(b)), and the Federal Circuit's reasoning in Bill Strong Enters., Inc. v. Shannon, 49 F.3d 1541 (Fed. Cir. 1995), *overruled in part by* Reflectone, Inc. v. Dalton, 60 F.3d 1572 (Fed. Cir. 1995). Such costs are not allowable costs if they are incurred for prosecution of claim. FAR 31.205-47(f)(1).

AMEC argues that the consulting costs related to Jacobs & Associates' analysis and calculation of the JV's REA are unrecoverable, because a request for equitable adjustment is considered a "claim" under the Contract Disputes Act, Reflectone, 60 F.3d at 1577-78; under the CDA, legal, accounting, or consulting costs incurred in connection with prosecution of a claim are per se unallowable. 41 U.S.C. §§ 7101-7109.

In light of this Court's ruling that the CDA does not apply in pertinent part, the parties will be directed to brief anew the JV's ability to recover any REA consulting costs.

VIII. THE JV'S CLAIM FOR PREJUDGMENT INTEREST

The Subcontract does not expressly fix a rate of interest. Under such circumstances, the Court looks to Nevada law, which governs the Subcontract, to determine a

party's right to prejudgment interest.

AMEC contends that, should the Court determine that Nevada law applies, N.R.S. 17.130 is applicable for calculating prejudgment interest. AMEC's FOF/COL at 190. The Court does not agree. Nevada Revised Statutes ("N.R.S.") section 99.040 is the correct statute to determine prejudgment interest. The Supreme Court of Nevada has held that N.R.S. 17.130 "applies in noncontract based actions," while N.R.S. 99.040 "applies in cases concerning contract disputes." Kerala Props., Inc. v. Familian, 137 P.3d 1146, 1149, 1150 n.9 (Nev. 2006); Ramparts, Inc. v. Fireman's Fund Ins. Co., No. 09-371, 2011 WL 3667506, at *3 (D. Nev. Aug. 22, 2011) ("In Nevada, NRS 99.040(1) is the prejudgment interest statute that governs contract cases.") Since the dispute between AMEC and the JV is a contract-based dispute, N.R.S. 99.040 is therefore applicable.

An award of interest under N.R.S. 99.040 is *mandatory*, not discretionary. Clark Cnty. v. Mullen, 533 P.2d 156, 158 (Nev. 1975) ("The language of NRS 99.040 is mandatory[.]"); see also Ramparts, 2011 WL 3667506, at *3 ("Prejudgment 'interest is recoverable as a matter of right upon money due from contracts.'") (citing Schoepe v. Pac. Silver Corp., 893 P.2d 388, 390 (Nev. 1995)).

Where, as here, the contract does not set an applicable rate of interest, the prejudgment interest rate is "equal to the prime rate at the largest bank in Nevada, as ascertained by the Commissioner of Financial Institutions, on January 1 or July 1, as the case may be, immediately preceding the date of the transaction, plus 2 percent[.]" N.R.S. 99.040. "[T]he interest rate applied is the rate in effect on the date when the parties signed the contract[.]" Kerala, 137 P.3d at 1149. Pre-judgment interest is to be calculated at a fixed rate, while post-judgment interest is to be calculable at a rate adjustable biannually. Id. at 1149-50; see also Ideal Elec. Co. v.

Flowserve Corp., No. 02-1092, 2007 WL 1108537, at *6 (D. Nev. Apr. 10, 2007).

The Commissioner of Financial Institutions fixed the prime rate at 5.25% on January 1, 2005 (see Nev. Fin. Inst., Prime Interest Rate table, *available at* <http://www.fid.state.nv.us/prime/primeinterestrate.pdf>), the applicable date immediately preceding the date in which AMEC and the JV entered into the Subcontract—April 25, 2005. Accordingly, the fixed prejudgment rate of interest owed on any amount due to the JV is 5.25%.

“Prejudgment interest runs on costs from the time when the costs were incurred.” Albios v. Horizon Cmtys., Inc., 132 P.3d 1022, 1035 (Nev. 2006); *see also* Karala, 137 P.3d at 1149 (“[P]rejudgment interest does not begin to run until obligations become due [.]”). All of the impacts alleged by the JV occurred between February 11, 2006 and May 31, 2007, and the JV incurred all of its damages on or prior to May 31, 2007, the date on which the Air Force accepted the North Runway Project as complete. The JV also submitted all of its disputed change orders prior to May 31, 2007. However, as the JV has noted, the complexity of separating these impacts for determining prejudgment interest supports commencing prejudgment interest on May 31, 2007.

The Court will request supplemental briefing as to the extent of the prejudgment interest in conjunction with the parties’ briefing on damages.

CONCLUSION

In accordance with the Court’s findings of fact, conclusions of law, and holdings above, judgment as to liability only will be entered by separate Order in favor of the JV as to its Hot Mix Asphalt Claim, as to its Base Course claims associated with the sink hole and related base course issues between Station 40 and Station 60, as to its PCCP claims related to certain rain damaged lots and panels identified above and to acceptance delays and administration of

pavement acceptance, as to certain unpaid Change Order Requests identified above, as to the JV's claim for prejudgment interest, and as to portions of its claim for Liquidated Damages withheld by AMEC. Judgment will be entered in favor of AMEC as to all other claims. Where the Court has calculated the damages associated with a given claim, judgment will be entered in a specific amount; supplemental briefing as to all other damages will be requested from the parties.